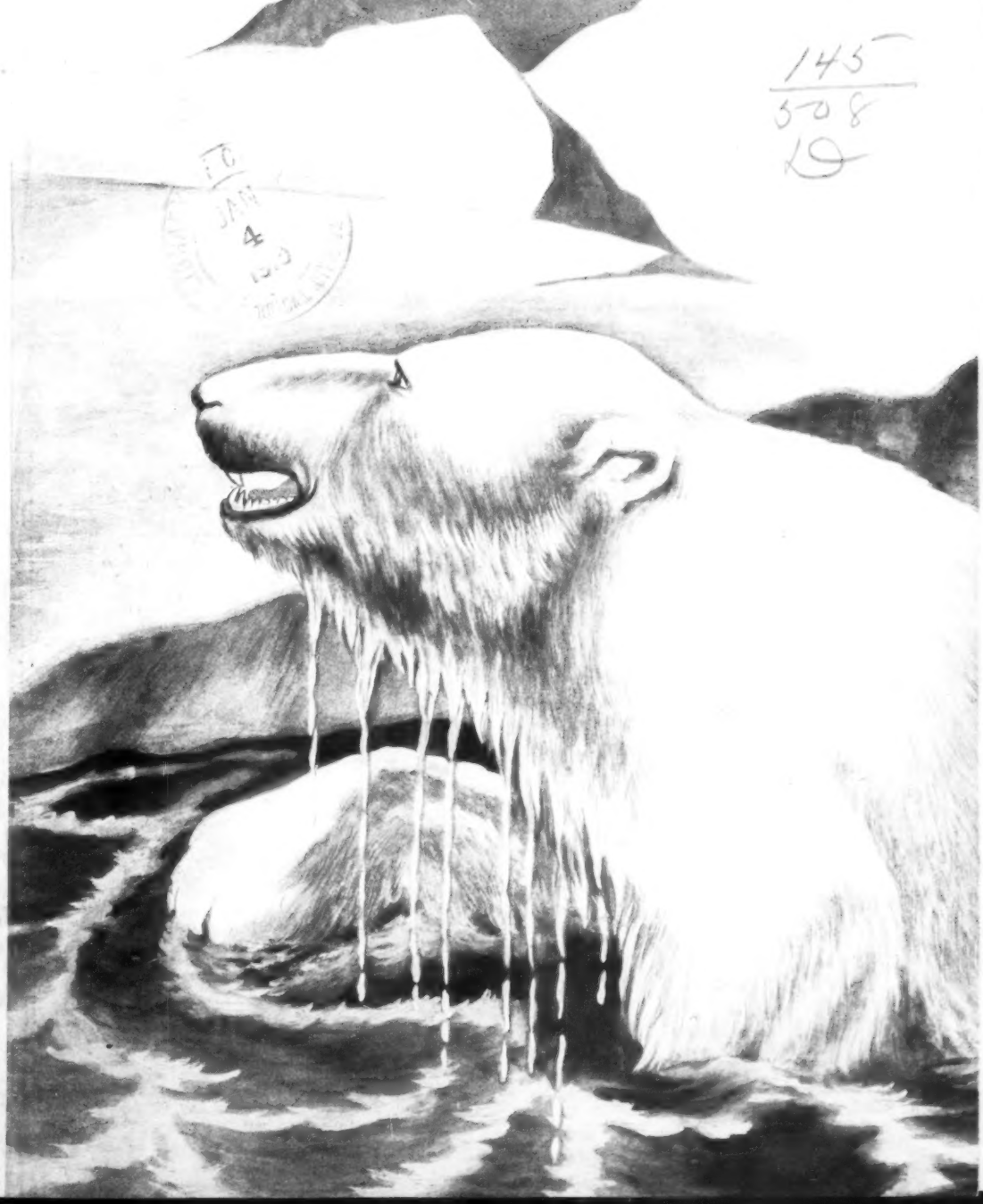
OUTDOOR LIFE

JAN. 1915

PRICE 15¢

145
508
D



SKI .07

The Best Books for Outdoor Men

Firearms in American History—1600 to 1800—Vol. 1.

By C. W. SAWYER. Illustrated with photographs of genuine old-time arms, military and sporting, colonial, revolutionary and later, explaining their varying forms and development, their historical background and worth and their national and international influence. The first book treating this aspect of history. Unrivaled data. Postpaid, $2.60.

Firearms in American History—1800 to Date—Vol. 2.

By C. W. SAWYER. The Revolver in War, History and Sport. An exhaustive reference book for lovers of arms. A necessity to the antiquarian curator, inventor, student and sculptor. The only book upon this subject. Profusely illustrated. Postpaid, $2.60.

United States Single-shot Martial Pistols

By C. W. SAWYER. This work illustrates and describes the big army and navy, militia and privateer pistols which are so rapidly growing in value. If there is anything you want to know about North Berlins, Deringers, Harpers Ferrys, Astons, Johnsons and all the others, look in this work. There are about 100 kinds described. Postpaid, $1.50.

The Still Hunter

By T. S. VAN DYKE. A practical treatise on deer-stalking. The author is a man familiar with the habits of deer and antelope, a familiarity acquired by long experience and careful observation, and in this book we get the results of his experience in its most practical form. 390 pages. Postpaid, $1.75.

The Camper's Own Book

A handy volume for devotees of tent and trail. Contributions by Stewart Edw. White, Edw. Breck, F. A. Bates, Chas. Bradford, F. C. Selons, etc., etc. Paper, 50c; cloth, $1.00, postpaid.

Camping and Woodcraft

By HORACE KEPHART. A pocket encyclopedia, covering the field indicated from outfitting and clothing, food and camp building to axemanship, woodcraft and taxidermy. Postpaid, $1.60.

Camp Cookery

By HORACE KEPHART. Selection of provisions and utensils. Food values, preparation of game, fish, beverages, desserts, etc. Postpaid, 75 cents.

The Way of the Woods

By EDW. BRECK. A practical field manual with concise information on all points connected with life in the woods —outfitting, fishing, shooting, canoeing, tenting, trapping, photography, cooking, hygiene, etc. 465 pages. Postpaid, $1.85.

Our Vanishing Wild Life

By WM. T. HORNADAY. A practical treatise on the extermination and preservation of wild life, a protest against slaughter, a call to arms in defense of this wild life, and a handbook of useful information for lawmakers. Mr. Hornaday has proved a giant power for the protection and propagation of our wild animal life, and the mass of facts found in this volume is enormous. 412 pages. Postpaid, $1.50.

Packing and Portaging

By DILLON WALLACE. The ground covered in this book ranges from man-packing to horse-packing, from the use of the tump line to throwing the diamond hitch. Illustrated. 75 cents, postpaid.

Outdoor Signalling

By ELBERT WELLS. Mr. Wells has perfected a method of signalling by means of wigwag, light, smoke or whistle which is as simple as it is effective. The fundamental principle can be learned in ten minutes and its application is far easier than that of any other code now in use. It permits also the use of cipher and can be adapted to almost any imaginable conditions of weather, light or topography. Postpaid, 75 cents.

Outdoor Photography

By JULIAN A. DIMOCK. A book to solve the problems of camera work out-of-doors. Postpaid, 75 cents.

Hunting Camps in Wood and Wilderness

By H. HESPETH PRICHARD. Many illustrations from photographs and drawings. This book tells of the experience of this well-known big-game hunter in Patagonia and British North America, and will especially interest the American public because many of the localities mentioned are within easy reach. Postpaid, $4.30.

In Beaver World

By ENOS MILLS. We know of no one better qualified to give us the beaver's history than Mr. Mills. His beaver studies cover a period of over twenty-seven years, during which time he has traveled in every state in the Union, besides in Mexico, Canada and Alaska. Postpaid, $1.90.

Book of the Tarpon

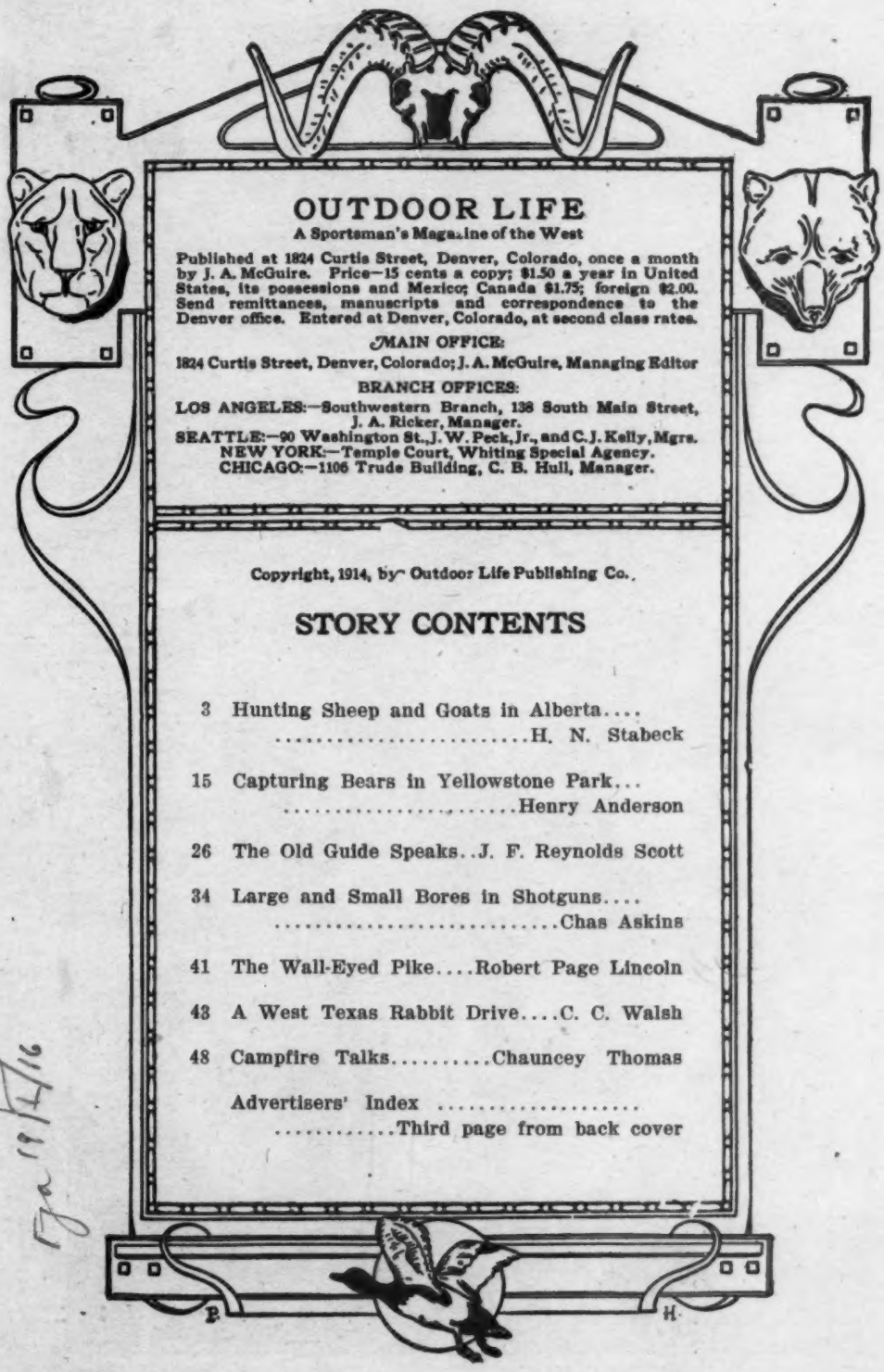
By A. W. DIMOCK. The latest and best book on this subject. Illustrated with one of the best collections of fish pictures ever produced. $2.00, postpaid.

Game Birds

By CHESTER A. REED. Over 100 game birds are pictured in natural colors and full descriptions given. 65 cents, postpaid.

OUTDOOR LIFE PUBLISHING COMPANY

1824 Curtis Street **Denver, Colorado**



OUTDOOR LIFE

A Sportsman's Magazine of the West

Published at 1824 Curtis Street, Denver, Colorado, once a month by J. A. McGuire. Price—15 cents a copy; $1.50 a year in United States, its possessions and Mexico; Canada $1.75; foreign $2.00. Send remittances, manuscripts and correspondence to the Denver office. Entered at Denver, Colorado, at second class rates.

MAIN OFFICE:

1824 Curtis Street, Denver, Colorado; J. A. McGuire, Managing Editor

BRANCH OFFICES:

LOS ANGELES:—Southwestern Branch, 138 South Main Street, J. A. Ricker, Manager.
SEATTLE:—90 Washington St., J. W. Peck, Jr., and C. J. Kelly, Mgrs.
NEW YORK:—Temple Court, Whiting Special Agency.
CHICAGO:—1106 Trude Building, C. B. Hull, Manager.

Copyright, 1914, by Outdoor Life Publishing Co.

STORY CONTENTS

3 Hunting Sheep and Goats in Alberta.... .....H. N. Stabeck

15 Capturing Bears in Yellowstone Park... .....Henry Anderson

26 The Old Guide Speaks..J. F. Reynolds Scott

34 Large and Small Bores in Shotguns.... .....Chas Askins

41 The Wall-Eyed Pike....Robert Page Lincoln

43 A West Texas Rabbit Drive....C. C. Walsh

48 Campfire Talks.....Chauncey Thomas

Advertisers' Index ....Third page from back cover

Fgn 1914/16

H. E. PECK AND LARGE SHEEP.

DEC 31 1914
©CLB327182

OUTDOOR LIFE

Vol. XXXV. JANUARY, 1915 Number 1

HUNTING SHEEP AND GOATS IN ALBERTA

H. N. STABECK

No one likes a long rehearsal of the journey to the hunting grounds; nor do I believe the average reader is impressed with articles full of extreme dangers and hardships undergone by the writer in penetrating inaccessible country seldom or never before visited by human kind. I will attempt neither, for the country I am about to describe borders directly on a well-settled agricultural community at the very base of the Rocky Mountains, through which hunters seeking always a virgin game field take a through train. We left the main line of the Canadian Pacific railroad at a small station called Pincher, in the southwestern part of Alberta, and then traveled out via express wagon to the ranch, which is thirty-five miles distant.

In starting out on this account of our trip, I will first introduce our little party: My companion, Horace E. Peck, expert trap shooter and a red-blooded sportsman whose company in camp is one of the greatest pleasures of an outing; F. H. Riggall, the guide, who is the best hunter, photographer, naturalist and gentleman all combined in one package it has ever been my lot to meet; Watmough, the cook and partner of Riggall; John Taylor, second guide and helper, a wiry English youth of 21.

Riggall's ranch is forty miles from a small station in Western Alberta, in the very shadow of a high, rugged mountain on the west, and with an endless prairie to the east. It is beautifully located on the banks of a stream which comes rushing out from the mountains. It is surrounded with trees, alive with the song of birds. In all, it is a scene of deep beauty and brings peace and contentment to whoever visits this domain.

Our first camp was about fifteen miles from Riggall's Ranch on Pass Creek, a good-sized stream fairly well supplied with Rocky Mountain and bull trout, and a few Rocky Mountain whitefish. The elevation of this camp was about 5,000 feet. On each side of the stream were high mountains covered partially with scrub timber and high scattered brush, alternating with open spaces and rocky ledges. Down stream was an open view of the prairie. On the other side was an endless panorama of mountain scenery. Although this was practically within sight of settlement, on the first day out

SCENE ON PASS CREEK. WATERTON LAKE IN DISTANCE.

we saw two sheep, one being a small ram and the other a ewe, which we did not molest.

Our next camp was about six miles further up Pass Creek following an old trail over which thousands of dollars' worth of furs had been transported by the Hudson Bay Company a generation ago. Here the mountains were more picturesque and rose to greater heights. Lone Mountain, which from its isolated position is well named, is an imposing, wedge-shaped mountain directly up stream. On the one side, the mountains rose to a height of about 9,500 feet, which served to remind us that we were out of the foothills. A few days at this camp convinced us we were not in the best sheep country. We, however, located four goats early one afternoon, one big billy, one small billy, a nanny and a kid. As stalking goats is nothing extraordinary, we were soon within 100 yards of the big billy, Peck's honor, but he missed his first shot. I followed without any better success; but after a fusillade of twelve or fifteen shots, the goat died. I would not venture to estimate the weight of this billy, but he was an exceptionally big one. His horns measured ten and a half inches long and five inches in circumference at the base. This goat also had a great deal of staying power. Peck was shooting an 8 mm. Mauser, and with three bullets through him in the middle and front quarters and one bullet high up on his hind quarters from my .22 Hi Power, which momentarily let him down, he traveled fifty yards, after being vitally wounded four times.

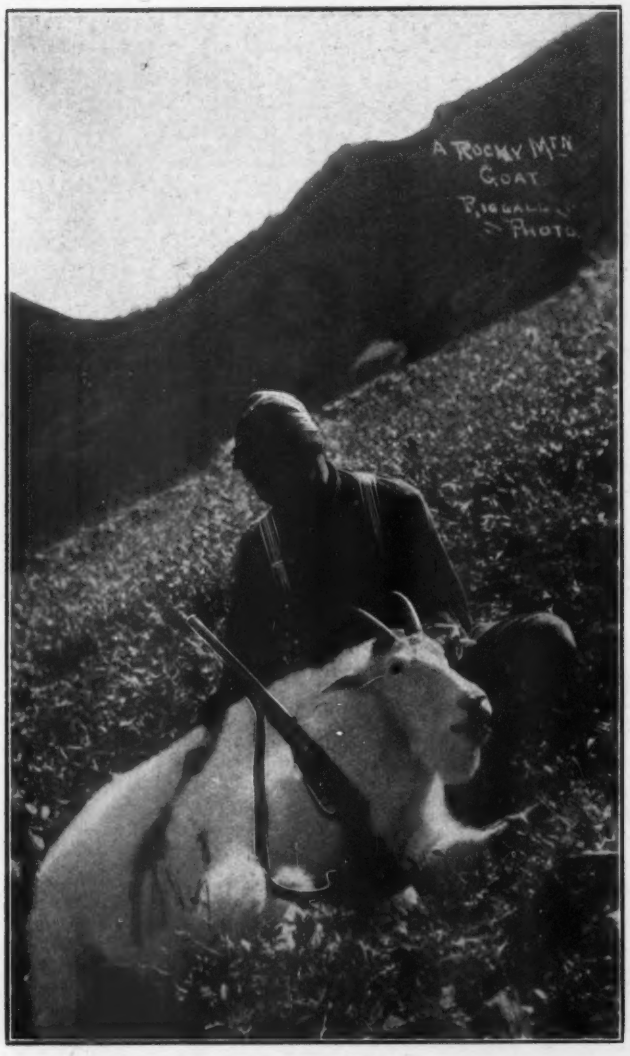
On our way back to camp we suddenly noticed a goat running at top speed along the cliff above and toward us. With our field glasses we could see that he was a large billy. Peck decided to get the goat limit out of his system and hurried under cover toward the cliff. The goat came to within seventy-five yards of him before he became suspicious, and at the third or fourth shot tumbled off the ledge, stone dead. He had a nice pair of horns and a good pelt.

From this camp, Peck, Riggall, Taylor and I, with a light outfit consisting of a seven-pound tent and light cooking outfit, started out early one morning, intending to cross Stabeck's Peak (a mountain temporarily named in Mrs. Stabeck's honor the year previous), which has an elevation of about 10,200 feet, into a basin that was to be called "Peck's Basin," providing his honor, Peck, should visit said basin. We reached the summit at about 2 p. m., after some difficult climbing across lava rock, huge boulders and more or less snow. We felt well repaid for the effort thus far, for from this point to the north we could see several glaciers. Below was the much coveted basin (by

Peck), one of the grandest natural parks I ever expect to see. It was surrounded on three sides by high, rough, snow-capped mountains. The lower end of the basin was marked by a perpendicular wall down to a lower level of 400 feet with four beautiful lakes located one in each corner of the basin, just as regularly as though they had been artificially arranged. A good-sized stream connected the lakes in pairs, both streams running parallel with each other, with corresponding waterfalls in each, merging in an outlet of the lower lakes and rolling over a sheer cliff of 400 feet or more. Huge fir and spruce timber with occasional open parks, combined to make the scene all the more beautiful and picturesque. This basin seemed to be the rendezvous of a great many birds and animals, as from where we stood we could see the lakes were dotted with ducks of different varieties, a number of small birds were flying through the air, a golden eagle hovered overhead, and a bunch of four goats were peacefully resting on a sunny ledge. After enjoying this wonderful landscape for a short time, we descended into the basin and pitched our camp on the shores of one of the lakes, and had gotten outside of a square meal by nightfall. We covered considerable country the next day or two from this camp, but without much success, save seeing four very large sheep (all rams) which we jumped at about 150 yards ahead of us. We failed to connect with three hurried shots; but later in the day as we were returning and were within sight of camp in our favorite basin, two billygoats stood facing us at about seventy yards away. As Peck already had his limit on goats, I decided to try and make a double. The largest goat dropped in his tracks at the first shot; but I missed the second one as he jumped behind a rock. After making a run of about fifty yards I caught sight of goat number two, running, but I did some poor shooting. Suddenly he came to a standstill about 150 yards away. I was about to pull the trigger after careful aim when Riggall came up and in his quiet way said, "Better let him alone. We have a pretty big load going home and we may yet get sheep."

I decided that the goat was entitled to his freedom, after such a shooting exhibition, and passed him up. The one

UPPER WATERTON LAKE, NEAR RIGGALL'S RANCH.



H. E. PECK AND HIS LARGEST GOAT.

I did get was a big one with 10½-inch horns. The second goat remained in sight until we had finished skinning the first one.

We reached camp about dark, in a snowstorm, had our usual feed, rolled in, and rolled out in the morning to find eight to ten inches of snow on the ground. We had made arrangements with Watmough to meet us at the summit of the mountain on our way back to the home camp at 2 p. m., that day, to help us with our load. As we had plenty of time, we decided to spend an hour trying to photograph a billy goat that we had located on the mountain side a short distance above a patch of timber. In order to get well below him and approach from the other side to avoid a cross wind, we walked slowly and with considerable caution down a small stream for some little distance and were about to turn into the timber when we met Mr. Billy unexpectedly face to face and not over twenty feet away. By the time the camera could have been gotten into action, he had taken a through ticket to the next mountain and was out of sight. We made a 100-yard dash in something over ten seconds, in an effort to head him off before he got to the ledge leading out of the basin, thinking possibly we could stop him and get a snapshot of a scared goat—but no use; billy had us beat a block and was out of camera range when we reached the appointed spot. Riggall, in his droll manner, simply remarked, "That goat got our goat," and started back to camp before he had finished those few appropriate words. We packed up and started back to the main camp, but the going was sloppy and very slow with our load. Riggall was packing sixty pounds, Taylor forty-eight, and Peck and I were content with thirty pounds each.

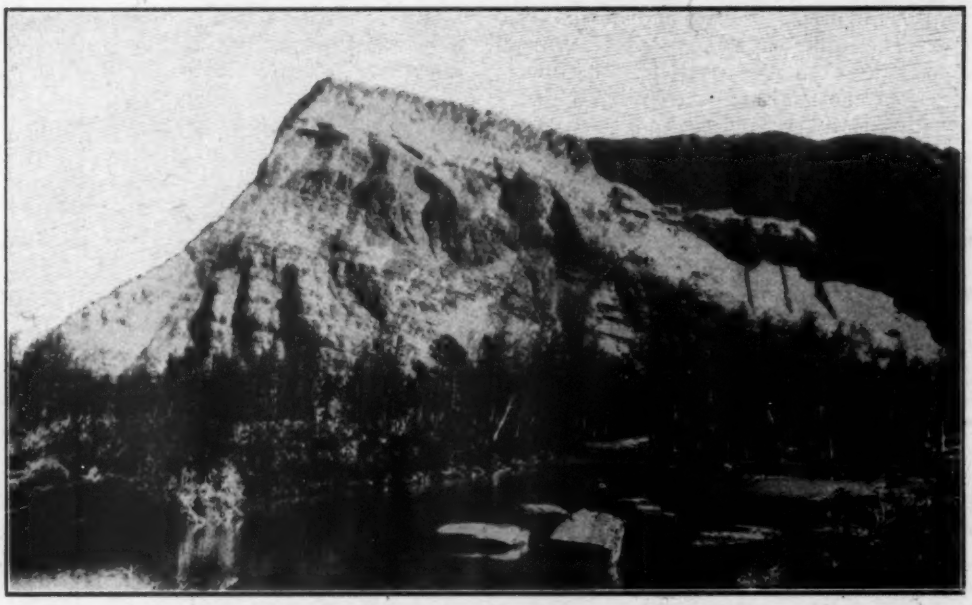
We met Watmough but were an hour behind scheduled appointment. Our loads were all reduced by Watmough's taking a little from each, and it looked as though going would be easier for the balance of the journey, but a cold rain set in which later developed into a driv-

ing sleet and we were soon drenched to the skin. We attempted a short cut to camp, which got us into more trouble, as we encountered a stretch of windfalls, some of it the result of old snowslides, where timbers were piled in every direction six to eight feet high. We took to wading down a stream, oftentimes in water up to our hips, rather than climb and slip on the icy timbers. Anticipations of getting back to camp and near a fire were the most pleasant sensations we had that afternoon.

Before moving further into the mountains, we decided to hunt a few days more from this camp. One day we got an early start, intending to cross a high ridge well to the west. It was a long climb, but we were well into a basin that looked like very good sheep country before midday. There were many sheep trails, and as we were cautiously working along the side of the mountain, we imagined we heard the steps of sheep or goats on the slide rock, but we were unable to locate either until we stopped for lunch. Riggall with his field glasses then sighted four sheep, all rams, one of them having by far the largest horns we had seen up to date. As they were between five and six hundred yards away, we decided not to try a chance shot at that distance, but to work around the mountains and meet them at closer range. They had seen us, however, and evidently had not stopped until they were well out of reach for that day, as we never caught sight of those big rams again.

On our way back to camp that particular day we decided to take a short cut straight down a creek bed to camp, instead of making a half-mile detour to avoid some thick timber and heavy underbrush. We found the creek bed very steep and slippery, with a continuation of ledges two to seven feet in height; and, although we slid and dropped over these ledges very carefully, Mr. Pack narrowly escaped a fall that might have had very serious results. As he was letting himself down over a sheer drop of about six feet, the underbrush he was hanging onto gave way and he hit the first rock, landing on his back, bounded off, went clear of the second shelf, and, as he hit a projecting rock lower down all in a heap, he managed to stop on the very edge of a twenty-foot cliff. We were soon beside him, glad to find his injuries less than we expected, considering the dis-

PECK'S BASIN.



SCENE IN PECK'S BASIN.

ROCKY MOUNTAIN PTARMIGAN.

tance he had fallen. His forehead, however, had a gash that was bleeding freely; and his legs, while not broken nor seriously injured, were badly bruised and skinned. We rested half an hour or more after this scare, and took to the tall timber and underbrush for the rest of the trip to camp.

After lying about camp for a day, we decided to move while Peck was limbering up, and we next pitched camp on the shores of a beautiful little lake t an elevation of about 8,500 feet. The lake was above some falls too high for fish, but it was a most extraordinary camping spot, and we could not resist the temptation of a "September Morn" dip into such an inviting pool of crystal water. We remained in this camp for a few days, although there were not many signs of sheep or goat, because the camping and scenery were ideal. One day we started out early, intending to travel as far to the northwest as possible. After reaching the summit of a near-by mountain, we skirted along the top for some time and found at the very peak of a small range with an elevation of about 9,500 feet, a succession of pillars or irregular formations of rock,

ROCKY MOUNTAIN BLACKTAIL OR MULE DEER.

ROCKY MOUNTAIN GOAT AT HOME.

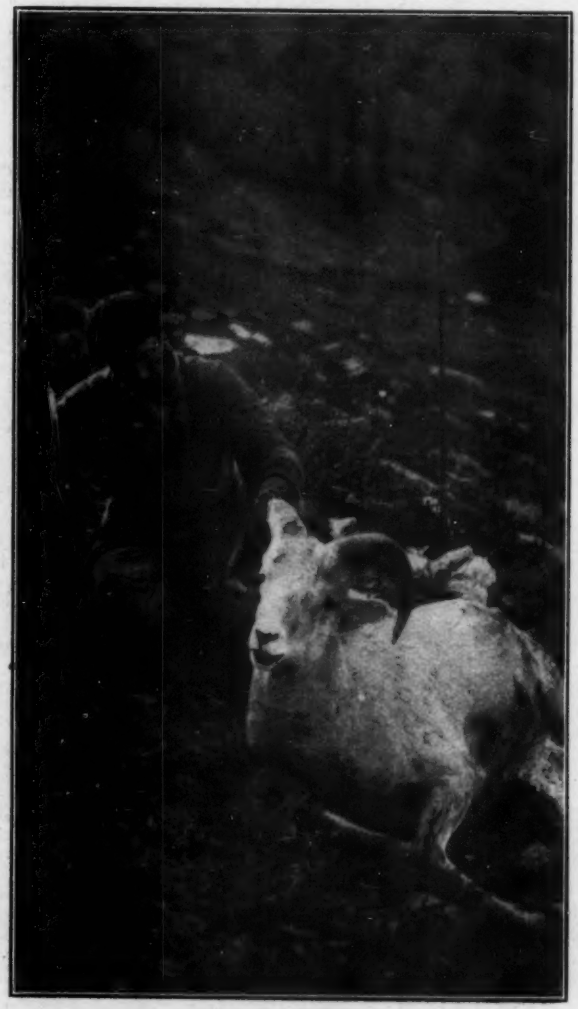
similar to those in the Garden of the Gods in Colorado, with stretches of flat rock that resembled a paved street. We stopped here to eat our lunch and were debating whether we should return to camp, or go on further looking for sheep, or try to photograph and shoot a goat that was quietly resting on a ledge a few hundred yards away. We finally decided in favor of continuing our hunt for sheep, and congratulated Mr. Billy Goat on his new lease of life. His chances were rather slim as against the hunter with high-power rifles and the trapper who often uses goat carcass for baiting his bear trap.

Just about this time we were going to give up looking for sheep, as it would be almost too late to get back to camp if we were successful, when Riggall, as usual the first to see game, spied five sheep, all lying down, about a half mile away. Stalking them to within reasonable shooting range by going around a mountain and sliding down through some underbrush was at least an hour's work, but as Riggall stated that it was a sure cinch to get two of them, we chose this way rather than take a chance of their seeing us entering the basin from where we were. After crawling on all fours for a hundred yards or more in the final stalk, we were within seventy-five yards of them and the sheep were still unaware of any danger. They were all rams, but we were disappointed in the size of their horns, all being small ones. An argument followed as to whether we should try to photograph them or shoot. There seemed to be no hope for a compromise or settlement until the situation bid fair to lose both, as the sheep had apparently decided not to stand for such a discussion and had started to move off. I applied the gag rule by starting a bombardment. Peck joined, and two small rams died as a result. We were both sorry afterwards, but consoled our consciences with the fact that a small head would make a nice mounting with the big one we were going to get later, and that we needed some fresh camp meat anyhow.

THE AUTHOR AND SMALL SHEEP.

It was almost 5 o'clock when we were ready to return to camp, Riggall with one pair of horns and one hind-quarter, Taylor with the same load, Peck with the lunch bag full of sheep liver, cam-

era and his gun, and I satisfied with an additional supply of mutton, camera and gun. We were, as near as we could estimate, eight or more miles from camp via a short cut down mountain. Our first thought was to go as far as we could before it became too dark to see our way and then camp for the night, but as we got part way down the mountain and into timber, it seemed impossible to find a place for camp without danger of rolling off. It became so dark we had to call to each other continually to keep from getting separated. Our loads were getting heavier and our shins were getting the worst of it, stumbling and falling over boulders or windfall. We traveled for several hours in this way until we reached the valley, where we followed the creek, and a very tired bunch arrived at camp at 11 o'clock that night.



H. E. PECK AND SMALL SHEEP.

Our next camp was a day's travel with the pack outfit to Old Man river. This camp, like those previous, was very interesting. In this particular locality there were a number of moose, a few elk and some blacktail deer and goat, but sheep signs seemed to be a minus article. We had talked all along of trying our hands at photographing game and birds instead of continually hunting. As elk, moose and deer were out of season, this seemed to be an opportune time, and we spent four very interesting days at this camp, with some success, as you will note by accompanying pictures, and some failures (Riggall, the real photographer, being on the success end). While at this camp I picked up another billy goat, and in this particular shooting I took occasion to investigate the result of the .22 Hi-Power shell. I started shooting at 200 yards, and the goat was down at 275 yards. I had hit him twice on the right side at approximately 200 to 225 yards away. Both of these bullets exploded and one tore a large hole in his quarter, the other tearing and mutilating his intestines. From the left side at 225 yards three bullets had hit him. One had exploded perfectly and tore a large hole in his front quarter. Another had gone through his ribs and had not exploded but was well mushroomed and lodged against the skin on the opposite side. The third shot had gone through his neck with a hole the size of a quarter on

CAMP ON OLD MAN RIVER.

ONE OF THE LARGE SHEEP DYING GAME.

the opposite side. The fact that the goat traveled fifty to sixty yards after being hit several times any one of which were fatal, in no way discredits the .22 Hi Power Savage, but is rather a compliment to Mr. Billy, as from my observation a goat is as hard to knock down as a grizzly.

Camp Number 5 was at the head of Yaroo creek. Although we had some difficulty in reaching this particular locality with our pack train and in pitching our camp on a side-hill in a drenching rain, the prospects for getting a good sheep head looked better than any we had encountered heretofore. The skies had cleared by the following morning, after a light fall of snow during the night. We were out early, and although the going was slow and very damp from the melting snow on the underbrush and trees, we were up to the altitude of the sheep's peaceful domain by early forenoon. In the very first basin we located four large rams about a mile away. We had to make a detour around the mountain about two miles in order to stalk them successfully and to get within good shooting range, as the sheep were lying on a pinnacle with a clear vision for hundreds of yards on three sides of them and with the wind in their favor in the fourth direction. We could approach them from a higher ridge partially sheltered by overhanging rim rock, which was somewhat hazardous, as we had to negotiate a very narrow ledge on all fours and in full view of the sheep for half a dozen yards. We accomplished it all very successfully and it was as pretty a piece of work in stalking as I have ever observed; for which Mr. Riggall alone was responsible. We were within 200 yards of the sheep and where we could not take an-

TWENTY MOUNTAIN TROUT WEIGHING 41 POUNDS.

SCARED SHEEP.

other step without being detected, as we were in full view of them. There were four beautiful pairs of horns. We each picked our favorite pair, and both scored, Peck knocking his down with a very few shots. I was shooting my .333 Jeffery and it took at least fifteen of those 10-cent cartridges before I could slow down the speed of the sheep I had singled out, and then I had to track him half a mile in order to stop him for good. Though I shot poorly, a few inches on five different shots would have killed that ram outright, as I had hit his horns two inches above the brain; one bullet had grazed his breast, one had just hit him half an inch too high to break his backbone, another had cut the skin on his throat, and another went straight through his intestines, being the bullet that stopped his speed, but did not knock him down. The .333 Jeffery being about as powerful a gun as can be had, excepting for some of the foreign double-barrel rifles, proved to me that game must be hit in a vital spot with any rifle, in order to stop it. The horns of these two sheep measured 17⅛ and 17 inches, respectively, at the base, and were 36 and 38 inches long.

After spending a few days taking pictures and trout fishing at this camp, we concluded our 1913 hunt with the limit on sheep and goats.

Dan J. Singer and a sheep killed by him the past fall while hunting with Ned Frost of Cody, Wyo.

CAPTURING BEARS IN YELLOWSTONE PARK

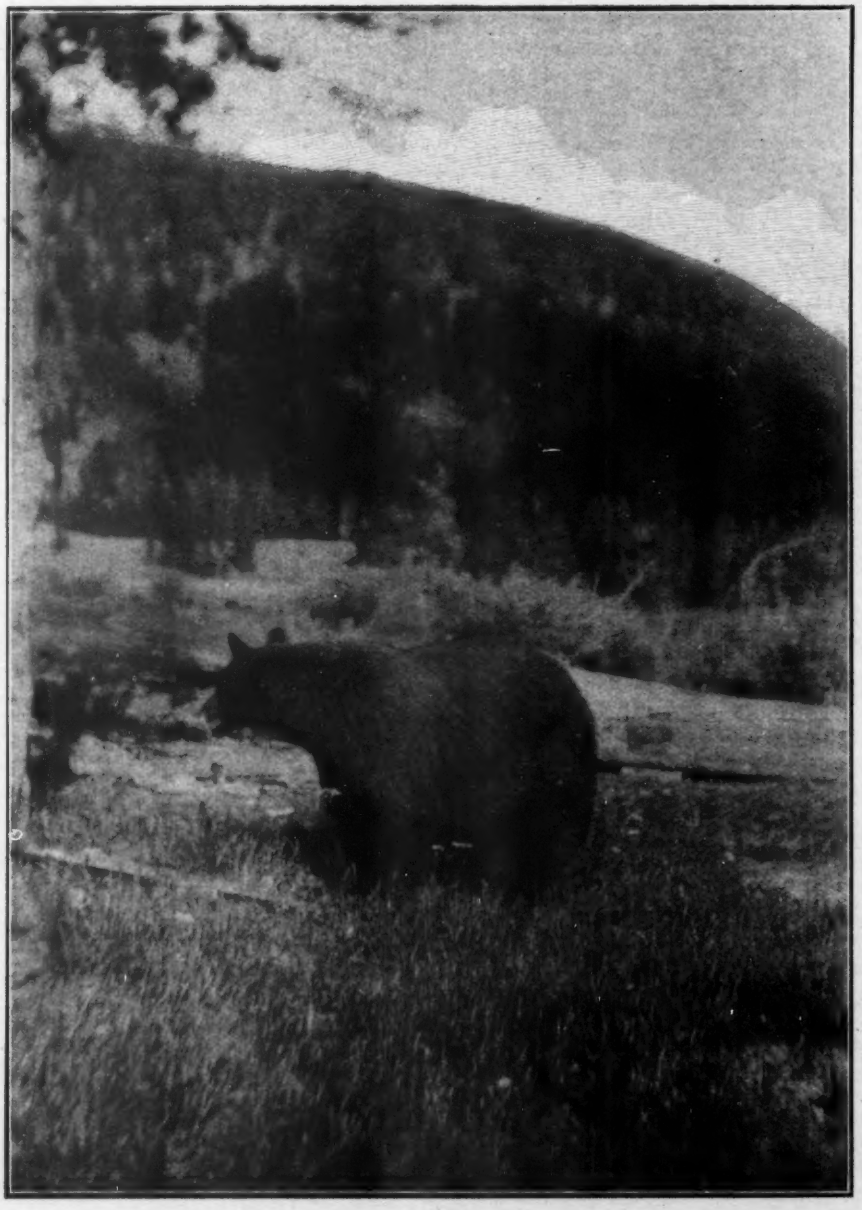
A story of much scientific, as well as sporting interest. What a grizzly bear, and a black bear, will do when cornered. Experiences in the capture of these animals that give a good insight into their various temperaments and dispositions. Written by a Government employe, who kills the lions in the Yellowstone Park and who also captures bears in that playground for shipment to the parks and zoos of the country.

HENRY ANDERSON

Different parks throughout the country had obtained the proper authority from the Department of Agriculture to capture bears in the Yellowstone Park, so on April 5, being detailed for this work, I went to a place known as the Hoodos, two miles west of Mammoth Hot Springs. After scouring the hills and likely places for bear signs, I finally climbed up on a rocky point and from my place of observation I discovered a black female bear playing on a snowdrift. I watched her for some time, when she eventually saw me and went in a large hole under a rocky point. I then went down to investigate and found the hole was very large and deep, as I could neither see nor hear her. I went up the next day and saw her again, and also found the track of another a short distance from the first one. As the weather was now very warm, the snow began to go off very, very fast. I went to the post, secured a team, made a sled and loaded on it the large steel cape or trap used to catch bear in. This is a large sheet-iron box, with ¾-inch bars in one end and a sliding door in the other which works up and down and is held up by an iron strip, one end of which sets under a small nipple on door; the other runs to back end with slot in for trigger to work through, and hangs inside cage, baited with fresh meat or bacon. When the bear pulls the meat, he also pulls the iron strip from under the nipple and the door drops behind him.

This cage is about 7 feet long, 2 feet wide, 4 feet high, and weighs about 700 or 800 pounds. We got the trap to within about 300 yards of the first bear and set it. The next morning I was at the trap early, but no bear. I saw the black female at about the same place, and when I made my appearance she went in the hole again. I circled around the basin to where I found the other track. I back-tracked it and found where he had holed up during the winter. He was between two flat rocks, with about two feet space sideways and about five feet lengthways. This place was not burrowed out in the ground, nor did he have anything to lie on in the line of vegetation. He had gotten in there on the rocks and had covered himself over with snow, as there was a streak of hair around the hole frozen in the ice where the heat from his body had melted the snow and had frozen again. Three days afterwards I discovered this one's hole. Two yearlings came out about fifty yards from the place where the second one had come out. They had holed up practically in the same place. One was in a hole on one side of the rock and one on the other side. I went into these holes; they had worked down a little deeper in the first than the old one had and neither one had any sign of vegetation to sleep on.

That same afternoon I was sitting on a rocky point which was projecting out of the snow, and noticed a small air-hole through the snow next to rocks, but thought it caused by the hot formation which is so plentiful around there, caused by hot springs. But imagine my



BROWN FEMALE TAKEN ON MADISON RIVER, Y. N. P. PHOTOGRAPH TAKEN A SHORT TIME BEFORE SHE WAS TRAPPED.

surprise next morning when I went to the same point and saw a big round hole through the snow where my feet had been resting the day before. If he had come up through that snow the day I was there, I think I would have gone straight to heaven. This was a large black male; I succeeded in catching him a day later where he holed up and about the same as the others, no bed of any kind but rocks being noticeable. He was shipped to West Bend, Iowa.

A few days later a large brown female came out in the same basin where I found the first one, but when I came in sight she went back in the hole. I examined the hole from the outside. It was also a deep one, as I could neither see nor hear her. I didn't go in either of these holes, for fear that either the bear or I would tear that mountain down trying to get out. These two stayed around their holes very closely and at sight of me they would go in. About two weeks later one had left during the night or early morning, and I could see two very small cub tracks where they went over a snowdrift going toward lower ground and where there was no snow. A few days later the brown left with one cub.

Seven bears came out of their long sleep in this strip of country inside of one-half mile space. I noticed in particular that none of these bears would eat any meat for several weeks after first coming out. They would eat the small huckleberry weeds and tear bark off of the small pine saplings—I suppose to get the balsam and sap as a kind of tonic. I noticed when they did begin to eat that they demolished all the dead elk they came to. The next bear I caught was a black female about 2 years old, and she was an easy victim, caught at Beaver lake. She came in to my road camp at noon and after dinner I set the trap and caught the bear inside of thirty minutes. She was shipped to West Bend, Iowa.

This filled the orders for small bears, so the next were the grizzlies. I noticed one's track on the road, and also at the garbage dump at Beaver Lake, so set the trap. I would stay around to keep the small bears away so they would not get in and snap the trap. The easiest way I found to do this was to get on top of the cage and lie down, and when one would start in, just kick the top with my foot and they would always turn back. I had kept this up for several nights and had never got to see the grizzly, so one evening I lay on the cage until 12 o'clock and never saw a bear of any kind, so I went to the tent and got into bed. I had not any more than started to dream of angels when "bang" went the door, and music began. I had caught an old mother grizzly. Her two small cubs were outside, and they were awfully wild for being so small. There was not much sleeping in camp from then on until morning, for she kept a steady roar and howl until daylight. So next evening I set the cub trap, scattered small pieces of meat around the floor and baited the trigger with a small piece of bacon. At dark the old lady began to call, and inside of half an hour here came the cubs whining, and every few steps they would stand on their hind feet and call. But their mother couldn't come. They came up to the cage and after they had tried it all the way around, trying to get in, the little fellows began to cry as a little child would. When they got over their crying they began to pick up scraps that were scattered around the cub trap. They were side by side, picking up the small scraps as fast as they could and doing a good deal of growling. They went in the trap the same way until one took hold of the bacon on the trigger, when the door dropped behind them. They both sat down and began to squeal and holler for all they were worth. The old lady made a good deal of noise herself. I slid the small cage around in front of the larger cage, where she could see them, and after she had quieted down a little I raised the door on the cub trap, as the door on the large one would keep them in, as both cages were pushed together. I then got on top of

the large one and raised the door about eighteen inches, and the cubs went in to their mother. The three were very quiet all night after they were together. These three were shipped to the Zoo Society of Philadelphia.

A month or so later I loaded trap and two shipping crates on wagon and set my trap at the garbage dump. The first night was a blank. There were a lot of grizzlies, but I failed to get the kind I wanted. The next night I was out early in the evening to keep the tourists back from the trap, as it is very dangerous for a crowd of people to be too close. If you happen to get the cubs the old lady, if she be outside, will most generally do a few fancy stunts toward moving a crowd, or one man either. This is the reason I keep the crowd back at a safe distance. The crowd stayed until 9 o'clock in the evening to see the bear trapped, but met with disappointment as no large bear came in until 11 o'clock, when two fine male yearlings came in. After eating what they wanted at the garbage they went to investigate the trap. When one saw the "half hog" I had on the trigger, he made up his mind quick that he wanted that, so in he went and a few seconds later he was a prisoner.

Here is where I found that one yearling will fight for his pal as quick (or quicker) as a mother for her cubs. I scared him away early in the night to get the bolt through the door to secure it against the one inside making his escape. At daylight next morning I went there early to discover the sex. I was squatted down with my face toward cage and back toward the hill, when the one in cage began to bawl. The one outside, which was in the timber on top of the hill, immediately answered. I looked back over my shoulder, and here came "his nibs" on the run down the hill, bawling at every jump. I sat in this position until I saw he was not going to stop before he got to the cage. I raised up, grabbed my gun and stepped to the opposite side of the cage. Well, that fool bear immediately dropped both ears back on his head and every quill on his back went up, and his mouth opened. Right there is where I got very homesick. But I did not dare to start home then. I got the cage between us, which did not look half as big as it was any other time, the bear standing on his hind legs coughing and snarling at me over the top of the cage. He would drop on all fours for a jump, but immediately raise on his hind feet. In this way we made two complete circles around the cage. He had me handicapped on the ends of the cage, for I would have to keep two or three feet back to keep the one inside from sticking his paw out through the bars and tearing my clothes as I went by. This only lasted a minute or so, but it seemed a good deal like an hour. He started back up the hill, but the fool in the cage could not keep his mouth shut, so back the other came, this time to the end of cage, and me at the other. He only stayed and snarled at me for a moment, and then started back up the hill. I threw a club at him, and he stopped short, and half turned and looked back as much as to say, "Don't do that again." I didn't throw any more, but said to myself, "If they continue to act like that, the price on bear is going to raise pretty quick."

I was very busy all that day keeping tourists back, as I did not wish to get any one hurt by having the bear come back while a crowd was there. He returned early that evening at about 8 o'clock, and was very cranky. He wouldn't eat on garbage and put in most of his time looking over the trap and transfer crates. He finally found the end that was open and in he went. A short time afterwards I had him in a shipping crate, setting alongside his brother. The next day I put in most of my time sleeping and watching tourists taking pictures. One young fellow walked to within about twenty feet of the cage, set his tripod on the ground, got everything ready, Mr. Bear lying on his haunches with his face next to the bars. Well, Mr. Dude was all ready to take a picture, so stepping behind

the camera, he threw that big black cloth over his head and about the same time Mr. Bear came to life. He stuck both fore-paws through the bars and as the cage was not setting very level, he began to swing the cage and howl. Mr. Man reached out with one hand, hooked his arm around the tripod, and started toward the Wiley camp with the black cloth still over his head. A little while later the same man came around to me and asked if there was any way to get a picture. I told him to go and get all he wanted. He said, "Man alive, there are only six small bolts holding that end in and he might break them off and get away." I told him, "That bear could not catch you anyway, if the speed you made across that flat is any indication of how fast you can run." He laughed then and thought the joke on him.

I loaded the two on wagon about sundown and started for Gardiner, some thirty-six miles distant, arriving there about 2 o'clock a. m. Those two bears kept up a steady howl almost all the way in. I always haul bear at night, especially grizzlies, for fear I might meet a coachful of tourists, and the horses, smelling the bear, might get frightened and cause an accident. Horses do not get as scared of the smell of the black and brown bears as they do the grizzlies. One of these males was shipped to Toronto, Canada, the other to Kansas City, Mo.

One mother grizzly and two cubs were caught at the Canyon a few days before these were caught, by the sergeant in charge of the soldier station, that was several years old and fought steadily until shipped to Kansas City, Mo. After shipping these two, I went back to the Cañon to try and get another grizzly and cubs for Toronto. I caught two I did not want and turned them loose. In turning loose the small bears, black or brown, I get on top of cage and raise the door, and out they go. They very seldom turn back. But the grizzly is different. I have never turned one loose but what he showed fight. I turn the cage onto one side, block up the springs, tie a rope in the top of the door, get on my saddle horse and pull the door open and move off from there pretty lively. When they get out they rear on their hind feet, turn around a few times as though they were looking for trouble, then make a run for the tall timber. I do not think it would be a good place for a man on the top of the cage, for when they stand up on their hind feet they are several feet above the top,

BEAR CAMP AT CANYON, Y. N. P., WITH YOUNG "CUB" IN SHIPPING CRATE.

and would be liable to jerk a man's feet out from under him and let him fall on top of the cage or ground.

About the fourth night I saw the most grizzlies I ever saw at one time, or ever want to under the circumstances. I was lying on top of trap, which was back some thirty feet from garbage dump, waiting for a mother and cubs to come. About 11 o'clock five large grizzlies came in on a run and were all around the cage in a moment. When they got scent of me they were on their hind feet looking and sniffing in my direction. A few minutes later seven more ran in and went through the same maneuvers, then went on to garbage and began eating and growling. A few minutes more and three more large ones came in. Well, that place was beginning to look like a bear roundup. Only a short time later three more came walking by my camp, which was about 200 yards from the dump. They came right on to the garbage. Now, none of these bears had even looked as though he was going to leave, yet several had come to look the cage over, but were very shy when I would tap the top with my toe. I was about ready to crawl off and let them have the cage, when one extra large old fellow came down the hill behind me and up to the garbage. He was a very cross old fellow and did an awful lot of growling. He did not seem to like the way the others had cleaned up the dump. These bears had now started to graze around on the grass in a small meadow and between me and the large fire I had burning at camp. I could count nineteen bears, and all were grizzlies. I waited a short time longer, when here came six running right up to the dump, and with a loud snort the whole bunch were standing on their haunches. Now here were twenty-five bears, and not a mother and cubs among them. When this bunch arrived the only one at the garbage pile was the old one. He was awfully light colored. Well, I saw where he was going to get into trouble quick, as there were some cranks in that bunch. He made one or two passes at some of them, and there was a lot of growling going on around there. If any of you have ever laid on a bear trap at 12 o'clock at night with a bunch of silver-tips quarreling around you, you can appreciate my position and feelings. All at once the cranky one made a pass at one large fellow, and right there is where my hair started to rise. These two big fellows were standing on their hind feet slugging one another and bawling. All at once they clinched and began to roll on the ground, and all the time coming my way. I could have jumped in and caught them with my hands they were so busy, but I was afraid I couldn't turn them loose soon enough to suit me, so I let them alone. They eventually got in a crouched position and stood growling. While they were in this position, one grazing in the flat let a large snort and the whole bunch ran for the timber.

I knew it was time for me to go, for there was an old mother and cubs coming. This was the cause of the others leaving so quickly. I had not quite gotten to camp when I looked back at the dump, and there was an old mother and three cubs. As the other bears had cleaned up the garbage, she was not long in finding the trap. After going around the trap and sizing it up to her own satisfaction (and the cubs had all got in among the cans in a large hole alongside the trap), the old lady made up her mind to go in and get the meat. She walked straight in, pulled the trigger and the door dropped across her hips. She backed out, reared up on her hind feet, looked around and then went over to the garbage. I took my gun and went up to set the cage again. I threw a few cans at her, and she ran up on the hillside out of sight. Thinking the cubs had gone, too, I walked up to the cage, and there about fifteen feet to the left of the trap sat those fool cubs each holding a gallon can and trying to get the sweet contents out of a small square hole cut in the top with a

cleaver or hatchet. When I saw the cubs I said to myself, "The head of the Anderson family had better move." About the same time I heard the old lady call, kind of coughing and sneezing like. But the cubs did not offer to leave.

I had built an extra large fire before leaving camp, so I could see for quite a distance beyond the trap. All at once, I saw that old lady come out of a dark shaded place into the light and she was so light colored she looked almost white. After another cough and snort, she came down to within about sixty or seventy feet of me, when she gave a kind of a sneezing sound, snapped her jaws together a few times, and with an extra loud snort she made a couple of stiff-legged jumps toward me and stopped, growling very loud. I had drawn a fine sight on the old lady about the first jump, and as I was about to shoot, she stopped. I did not want to kill any bear unless absolutely necessary, so didn't fire. I began to back up and every time I thought I was getting pretty well back, she would give a snort and make a few more jumps toward me. We kept this up for about 100 yards, when she eventually stopped. I was some "hot" at that bear to think she would act such a fool without any cause, so I decided to set that cage anyhow. I went and saddled my horse and started back to the cage. When I got to within about fifty yards of her, I started for her on a run. Well, the old sister did not run. She gave a snort, bristled up and came for me on the run. You should have seen that horse put on air, stop and turn in about one jump, and we were going some the other way. She only followed a short distance and turned back. When I saw her turn I thought this was the chance to get her to going, so turned and made another run for her. Well, she did not run, but gave a snort, turned and came for me again.

I made up my mind pretty quick that I did not want to set the trap that night, so I unsaddled my horse and went to bed. I did not set the trap until the next morning. After I had gotten everything in readiness (it was not yet dark), several tourists came over to the fire where I was sitting. Among them was the young man who was spending a month at the Wiley camp for his health. He wanted to see a bear captured, and asked me if he could stay there with me and see. I told him he could. The others went back to the camps about 9 o'clock. At 10:30 the first bears came in—two young grizzlies—but only stopped a few minutes and went on. At 11:10 here came the old mother and three cubs. They fed around for some time before the old lady made up her mind to snap that cage, so in she went, and a moment later the door dropped, but the old girl backed out. I started up to see what the prospects were to set it again. I managed to get the cubs started with her, so succeeded in getting the trap set. I had hardly gotten back to camp before she was there again, and in less than five minutes had snapped it again. She was an extra large bear and very long so I went back, chased her away and set it again. I slid my bait up against the top of the cage on the inside, so she would have to go in and reach up with her mouth to get it. Well, she came back in a few minutes and all three of the cubs went in and were eating the meat and scraps that were on the floor. I was holding my breath for fear one of them would get hold of the bait and snap the cage, for I was certain I would have a bear to kill if I got them cubs and that old lady was left on the outside. But after several minutes they came out and went to the can pile again.

The old lady made up her mind to snap that trap, so in she went, and in a moment the door snapped same as before on her hips, and she backed out. This time she refused to leave when I went up, so I decided it was my move. I went back to camp and decided to go to bed. The young man who had

TRAP IN FOREGROUND, SHIPPING CRATE IN REAR, AND TWO GRIZZLIES THAT WERE SHIPPED TO WISCONSIN.

stayed to see the fun and had been disappointed, now decided to go home to bed. It being about 1:30 o'clock, I told him he might as well turn in with me and stay until morning. I had my bed in the wagon box, not having any tent with me, so would throw a horse blanket over the back of wagon seat and over the head of my bed to keep the dew off. We had got to bed all right and had just got to sleep when an old grizzly came down to camp. He was on his hind feet alongside the wagon and my grub box was at the head of the bed under the seat. Well, that old fellow was jabbing his paw around on the horse blanket when he finally gave an extra hard jab, and stuck one of his fingers in my eye, I thought clear to the end of his claw. I let out a very loud yell and after speaking a sermon or two of religion which you hardly ever see in print, I began to look for my bed pardner. At the first yell I had given, the poor fellow went out over the wagon box, into the wet grass, and about the first thing I heard him say was, "What was it?" I told him it was nothing but a bear that had been trying to steal my grub box and had by mistake stuck one of his fingers in my eye. He said, "Is that all it was? Well, if you will hand me out my clothes I will go on over to the Wiley camp." I tried to get him to come back to bed. I told him the bear had only made a mistake. "Well," he said, "he might make a mistake and come up on this side of the wagon next time, so give me my clothes or I will go without them." I handed him his clothes, and he did not stop to dress there. He went over to his own camp to dress. He did not stay with me any more after that.

I put in two more unsuccessful nights after a mother and cubs, so decided to catch a female without cubs, which I did. The first one (she was a three year old) was very dark colored with long white quills or bristles, and weighed 700 pounds when shipped. A 500-pound bear was the lightest one shipped. The above female was

TWO-YEAR-OLD GRIZZLY CAUGHT A SHORT TIME AFTER POSING FOR PICTURE. THE BEAR WAS SHIPPED TO BOSTON.

shipped to Toronto, Canada. This filled the bear orders for that year.

In June of the following year I loaded trap and crates on wagon and went to the Cañon to get some more bears. I set trap at garbage dump. The first night was blank. No bear came in. The next evening two blacks came, but I did not catch any. The third night I caught a two-year-old male, a very large one and coal black. The next evening I caught another male, but turned it loose next day about 3 o'clock, and caught a black two-year-old female. She was very small and very much on the fight. I had decided to ship two of these small bears in one crate, so I put them both together. As soon as they were housed, this little one started in to lick the big one; she was continually chewing on him. He was very good natured and never offered to fight back. I laid the cage on one side so she could not stand up, which gave the big bear more chance to protect himself. Well, if a bear ever needed a good whipping, that small one did; she chewed on the large one all night.

The next morning, I loaded them in the wagon and started to Gardiner. I had a bear fight about every 100 yards. As the day got warmer, the large one commenced to get cranky, and I could tell from his appearance he was not going to stand much more of her fooling. I had not got to the Golden Gate when she made up her mind to have another scrap. Here is where the big one turned loose. He got her on her back in the bottom of the cage, and after chewing on her for some time, he finally stopped. Well, that little lady was certainly whipped for she got in one end of the cage and never opened her face again. These two were shipped to Boston, Mass. After shipping these two, I went back to the Cañon, and on to the dump at the Transportation Hotel. The first night I caught a fine two-year-old female grizzly. I transferred her into a ship-

ping crate and set the trap again. I staid until 12 o'clock, but no bear came.

I then went to camp and about 6 o'clock next morning was back again. There was the largest grizzly I ever saw, and the only one I ever saw trapped that could not turn around in the cage. He was an awfully old bear. His ears were all torn in strips, and notched up; his head was almost a solid mass of scars which extended clear back over his head; his claws were short and thick; his tusks were also worn to stumps, and he did not have a very pleasant appearance. I did not have any order to ship the daddy of all the bears in the park, as he was entirely too old to ship to any park, so I decided to turn the old patriarch loose. I judged this old fellow to weigh in the neighborhood of 1,100 pounds, after comparing his size with others I had already shipped. I turned the cage over on its side, blocked up the springs, tied a rope to the door and pulled the door open with my saddle horse. It was a few minutes before he wiggled out, when he acted more cranky, for he got up on his hind feet with his fore-paws extended, turned around a few times, and went up the hill on a run.

I put in three more nights here, but with no success. I then loaded the one I had and went to Norris, unloaded cage, took the other to Gardiner and shipped him to Boston, Mass.

The next was a brown female at Norris Soldier Station, which had been causing considerable trouble by tearing screens off the station and entering the house. She had done considerable damage. She was trapped by the soldiers at the station. I caught two others which were a little too black to be shipped for brown bears. I finally took the cage to the hotel dump and succeeded in getting a fine large three-year-old male. These two were also shipped to Boston. Then came a complaint to headquarters of grizzlies taking possession of the Wiley Camp at Cañon, so I again loaded trap and transfer crates and went there, set trap, fed my horse, also myself at Wiley's Camp, where I was treated with the very best of respect. Two soldiers accompanied me on this night, one from Norris Soldier Station, the other from Cañon. I will not mention any names. One was a short, thick fellow, sergeant at Cañon; the other a medium, fair-sized man, and also in charge at Norris Station.

About dusk we went around where we could watch the trap. There was one black bear there that was a regular nuisance. I could not make her stay from the trap, so after several attempts decided to catch her and put her in a transfer crate out of the way. In a few minutes I had her, and after dealing her some misery, turned her loose. She immediately went up a tree in front of cage. I had just got the trap set again when in came three yearling grizzlies. They went everywhere around there, turned over garbage cans and did not seem to have any fear at all. They finally got around to the trap. It was 12:45 a. m. Finally one went in and a moment later the door dropped. I went out and chased the other two away, and got the transfer crate slid to one side a few feet, when the one inside began to grunt. The soldiers had been standing to one side, but suddenly they made a jump and got on top of trap hollering to me, "Look out, Anderson!" I looked around and here came the two of them. I threw a lot of clubs and rocks and turned them back, but the fool in the cage would not keep his mouth shut, and back they came. I turned them several times, but could not get the trap set before they would be back, their hair all standing on end. I got the door up the last time and was reaching through the bars on door to pull the trigger back in place, when one of the boys hollered "Look out!" and at the same time I heard the other say, "Teddy, you got to move." He was referring to the black bear up in the tree, and from his appearance, he

intended to crowd that poor bear out. I just had time to drop the door, grab my gun which was leaning against the cage, and fire. I caught her on the last jump while she was in the air, and where she dropped her head was five feet from where I was standing. I shot her just above the right eye and killed her instantly. I always use a .25-20 Winchester. After killing this one, we managed to keep the other back long enough to get the trap set, and inside of half an hour I had the other. I had captured two alive and killed one in one night, so at 5 o'clock we started back to my road camp at Norris.

The next evening I took a team over and hauled them back, and went over again. The boy from Norris was game and came back again, but the boy from Cañon Station had other things to attend to. On the second trip I captured a large female and two cubs. This mother was a very large one in frame and build, but was very thin in flesh. I had to keep her in a steel cage for two days, for she was very powerful and I was afraid she might break out of a shipping crate as they are made of wood and lined with heavy sheet tin. I had to rope these cubs. The mother and cubs were shipped to Memphis, Tenn. The males were shipped to Milwaukee, Wis., one to Boston, Mass.

Two young grouse on line of the Copper River and Northwestern Ry., Alaska. Photo by J. P. Hubrick.

THE OLD GUIDE SPEAKS

BEING A COMBINATION OF VARIOUS TRUE NARRATIVES

J. F. REYNOLDS SCOTT

"No sir, this country ain't what it used to be; there's too many people. It's teetotally polluted with people sports, real sports, cheap sports and pinhookers. Pinhookers? Oh, them is the sort what won't have no guide at all, just paddles around themselves and get nothin'. And I call to mind the greatest cheap sport I ever seed in all my forty-five year of guiding—state senator from down in your country he was—Pennsylvany they said was the name of the state. It was over to Ontario, and me and Chris had guided them for ten days. The senator was awful slick tongued and polite, but wanted to be fishin' all the time, until I says one day, 'Senator, next time you come up in this north country bring a little 'lectric light to put on your bait so we wont waste no more time nights.' He took the hint. When he was going' out I paddled him to the end of the lake and he paid me off and then begins diggin' round in his pocket. Says he 'Hank, we had a fine time together and I will always remember it, we got a lot of fine trout too, so I want to give you somethin' extra.' And with that he pulls out a nice new dime—yes sir, ten cents!—and hands it over to me. Says I 'Senator, you better keep it, I can't take it. You might need a bit of a lunch or some postage stamps on the way home,' and I gets into the canoe and paddles off as fast as I can for fear of gettin' mad and hurtin' the old gaffer."

"Speaking of old gaffers," remarked the Tired Hunter, lying in his bunk and puffing clouds of tobacco smoke at the low cabin roof, "you are no kid yourself."

"No, I ain't no gyper myself. Sixty-three last April and lived all but three years in the woods. My old dad came from Connecticut and I was borned over in Michigan. Then ma and dad moved up here. Boys, ah boys, he was one big man. Six-four in his socks and weighed two sixty, awful strong and a grand man in a canoe. None of us five boys could beat him canoe racing until he turned 60 and there ain't none of us under two hundred pound either. He was a dandy fighter, too. I mind the row we got into over to Haliburton two year before the old man died. 'Twas one 12th of July and we all marched with the Orange Lodge, everybody pretty full as was only right. In the bar that night was a lot of Frenchies from the camps, a hard lot of rivermen. Somehow a row started and they got me down and was jumpin' on me with their corked boots whilst I bit one Frenchy's thumb pretty near off. The boys heard the racket and near killed the rivermen and when it was all over there was a terrible rumpus in the kitchen and we all runs in there. My old dad, 84 he was, had a Frenchy in the corner and was eternally hammerin him with the poker, said he hurt his wrist when the Frenchy dodged a swing and as the poker was handy he just used that. There was a hole in the plaster where the old boy's fist had landed, too."

"What sort of hunting was there over in the Ontario country?" asked the Tired Hunter.

"North of the C. P. R. there was moose, but south of it there was scarcely one. The south country was just creepin' and crawlin' with deer; I never seed no such deer country as that south of Algonquin National Park, and I have seed a big lot of Eastern Canada too. The law there came in November first and allowed us two weeks huntin' with dogs; it was a pretty rotten year if every sport did not get his two deer the first week, and good bucks at that. There was one lad,

OLD HANK.

a Dutchman from down in your country, that was the finest runnin' shot I ever did see in the woods. Many's the night I've left him setting all alone with a big bottle of whiskey and when I came in to wake the sports in the mornin' there he was still settin' in his chair and the bottle empty. He used to sleep for an hour after that and then go out on the runway; I stood right beside him onct when he put a bullet in a runnin' doe's head at eighty yards and then put the next two shots in her body while she was fallin'. That was in the days when automatics was new, but I never seed no one beat that work before or since. Whiskey in the woods? No, sir, I don't believe in it, seed too much of it in my life. There is a lot of city sports get the idee a trip to the woods means one long big drunk. The fellers that live in the woods like booze as well as anyone, better than most perhaps, for they don't get much 'till they get to a settlement and then spend all their money on it. Many a lad has worked like a beaver all winter in the camps and all spring on the river, choppin' in the snow and wadin' in the white water to his waist, and then spent every cent of his pay on a week's drunk. Then he aint got nothin' to show for six months' work. I know; used to do it my own self.

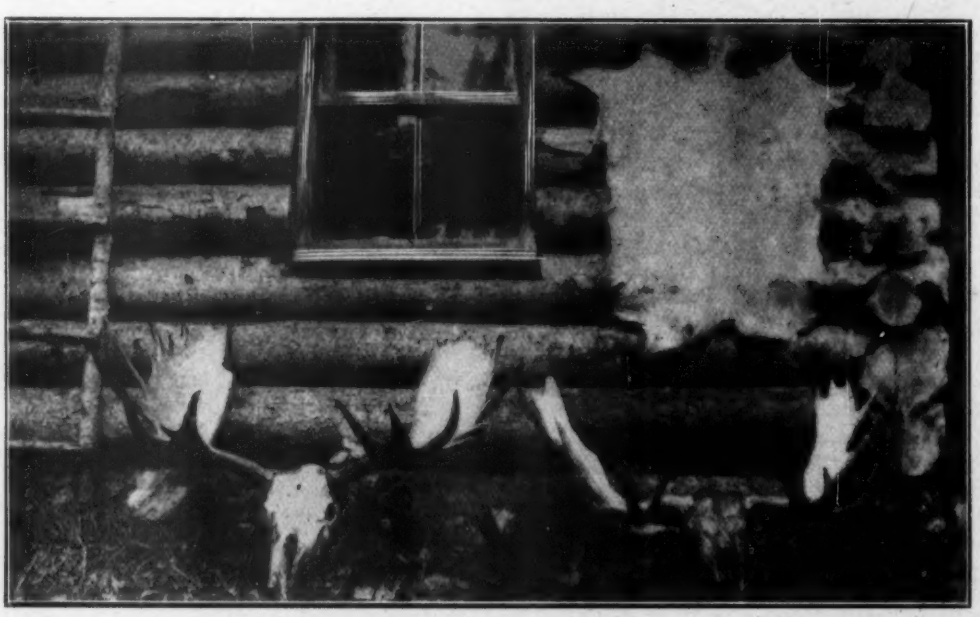
"I mind one time a gang of sports came in huntin' and brought a lot of liquor, fine booze it was. We hunted one cold day and hit the booze before we came back to camp in the canoes. That night me and Chris got sobered up some and looked around for old Dave; couldn't find him nowheres. The canoes was all at the landin', so me and Chris takes a lantern and paddles around the island, and about two mile down the shore we hears the awfullest noise in the world. Up in the woods about forty rod we finds old Dave lashed tight to a big pine. 'Lovely old Dow (only Dow waren't the word he used), what hellion tied me here, shouts Dave. and to this day we never remembered how Dave got there, for we had been huntin' on the other shore. Yes, a drunk sport is a lot worse for a guide to handle.

"I mind one old man from the states, awful rich they told me he was, who spent two weeks at one of them big clubs in Quebec. He must have been

drinkin' hard all the way in, for he landed at the first camp with the D. T.s and I took turns with an Injun, watchin' him for the next fortnight, until they sent him home. He had a fine trip; must have told some big lies when he got home about his good time. Then there was another one hunted in New Brunswick with me, the year I got took awful sick with information on the lungs. He was never sober, but could shoot all right and get his moose for two years. The next year he wrote me to meet him at Montreal and go to Alaska with him, 'cause I was a pretty good caller and he liked me. So I went, and when I met him he was drunk already, and when I turned around at Winnipeg and came back he was still drunk. They took him to a hospital there; that was the end of his trip. This year he wrote me to go to South Africa with him, but I had enough of that work; when he got furrin booze in him I guess he would be harder to handle than just full of American liquor."

Hank paused to shave some McDonald plug for his pipe, and the Tired Hunter asked what sort of deer there were in Ontario.

"What sort? Just red deer, same as here, not so big in the body as they growed in Michigan, and I don't remember no awful heavy pointed heads like I seed pictures of from New Brunswick. A ten- or twelve-pointer was a first-class head, and they was thick as flies. Many a fine deer Old Pat put into the water ahead of him and when he was runnin' of a frosty mornin' there were no finer music ever wrote. He was one fine dog and stuck tight to his deer's track. I mind one time we put him out for a race; he put one buck in, took the track of another and put him in, whirled around and started off after another. We shot the two bucks but Pat was away at dark so we all went back to camp without him. Next day two fellers camped on one of the islands came in with Pat. Said they found him up to Jean's Lake; he was still chasin' his deer. The buck was awful tired, and so was Pat; these fellers watched the pair of them for a while. First the buck would swim the narrers and lay hid in the bushes, then old Pat would paddle acrost, and then the buck would swim back. Bye and

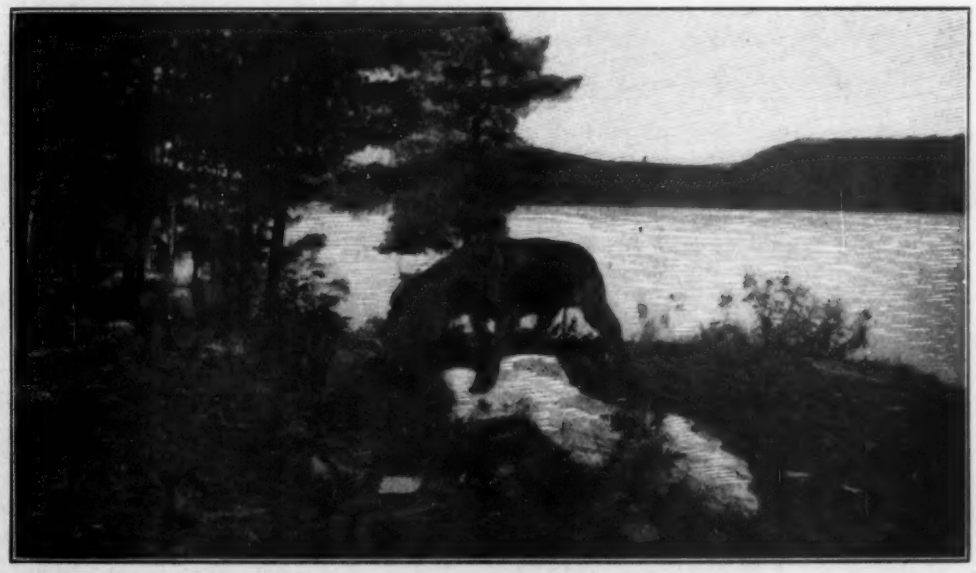


"I CALLED A BULL FOR ONE AND HE SHOT IT—61¾-INCH SPREAD AND 30 POINTS."

bue the fellers caught Pat; they had no gun to shoot the deer.

"I heard tell of a dog that was mostly greyhound; he was awful fast runnin' deer, and one day he hits a tree and busts himself in two lengthways. The feller what owns him comes along, slaps him together and off he goes after his deer and 'lakes' him. Being in a hurry, the fellow had put the dog together careless so that the two legs on one side was down and the other two up. The dog was all the faster this way, 'cause when he got tired on one side he just rolled over and ran on the other two legs.

"Did you ever hear tell of the smokeless cookstove? Oh, all right! Getting back to true stories again, I seed some funny deer in my time. We shot a small buck one fall on Holler Lake; he had one front foot bent up and turned in alongside—growed that way, I guess, but he ran on three legs pretty fast, just the same. Ever hear tell of a pair of doe's horns? Yes, sir; I know where a pair is now, nailed on the wall of a cabin up to Haliburton country in Ontario, near the Park. They was cut off a doe back in '93; the McMillian party shot her. Very light horns with four points; I seed the doe my own self. One of the best heads I seed in that country, a ten-pointer and as even and exact-like as could be, two young fellers got when trappin' one fall. Old Jerry was huntin' in from Kimball Lake and his dog runs the buck onto the thin ice but he didn't make the far side; drowned right there. The young lads was makin' a round of their traps less than an hour after; the ice would not hold 'em, but three weeks later they come back and chopped it out; the wolves had been working on the deer's belly sticking out of the ice but the horns had sunk the head down out of the way. Fur buyer offered them $25 for the raw head, but they kept it. I knowed a sport shot a pure white buck in New Brunswick the other year, just two patches of grey on its back the size of a man's hand, but I never seed no white deer myself. Moose in Ontario? Only seed two in that deer country; one was a little bull I shot on the Gunpowder River quite a while back and the other was a cow some kid of a sport got with a .22 W. R. F. Yes, that gun killed her and I seed it kill two deer and four loons besides. Wicked little rifle."



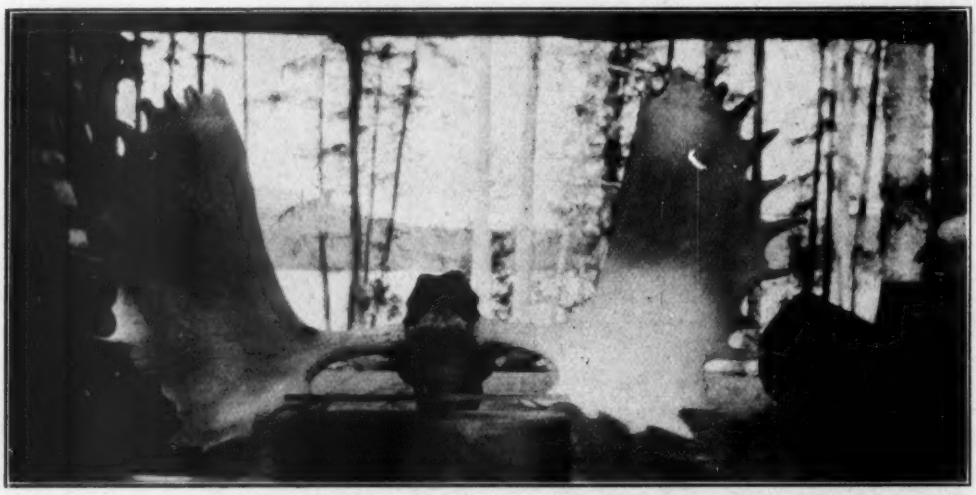
"HE WAS ONE FINE DOG."

"What is the best moose head you ever saw in the woods?" asked the Tired Hunter, as he filled up the stove with wood and lay back on his blankets again.

"I seed two fine heads, both shot in Quebec. About five falls ago I was guiding on a big club, and a feller went up above our party to the far end of the territory. He always wore a cartridge belt full of .30-40 shells and carried a big knife; said he was going to get a big moose, but I misdoubted it. Took a tent and two Injuns and spent a month, came back with a 64¼-inch head. His Injun told me there was another old Injun called Tammas, trappin' up there, and one morning Tammas woke up the sport to tell him there were a big moose feeding up to the far end of the lake. So the sport goes out and shoots him. Sort of easy, that. Then I seed a 64½-inch head killed on another club early one September. This sport was in a canoe at daylight and heard a moose splashing around. His guide works along the shore in the fog and the canoe runs on a rock just as they turned into the bay where the noise was. The bull and cow makes for the woods; the sport puts a .35 automatic into the bull as he was trying to push his horns through the second growth. It was too thick there, so Mr. Bull comes back and gets two more bullets and dies. That was one fine head, 36 points, 18-inch webs and perfectly even. I never seed the like before and never will again.

"Some sports will shoot any old thing with horns and some want to pick their heads. I paddled a sport onct; he said he had a lot of good heads at home, and wanted an extry fine one, or none at all. We paddled around about dark, and down to the outlet heard a moose walk in the water. When we got near him it was 'most dark, and he was eating roots under water, 'carrots,' the French call 'em—just like that cow we saw yesterday. He would stick his head under and stay down maybe a minute, and when he lifted his head the water ran off it and out of his ears with an awful noise that still evenin'. We seed one horn in the dark, so my sport shoots and next day goes back early to haul him out. Say, it was funny to hear my sport swear! The horn we had seed was a good one but the other was no good at all. He did not want the scalp; just took the horns and left, awful sore.

"I mind another sport that was sore he got his moose, a good head, too. We watched a bog an' one evening and near dark a bull came out and we shot him.



64⅛ INCHES AND 36 POINTS, WITH 18-INCH WEBS. NOTE TWO-FOOT RULE ON BROW POINTS.

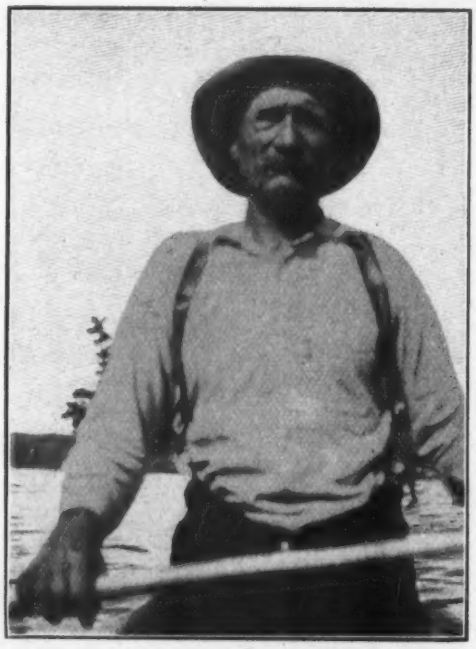
Next day we found him still livin' an' he was blind in one eye. All the rest of the sports never let up on my man for killin' a blind moose; said it was a dirty trick and they would tell every one in New York about it. That feller was a great hand to draw, and the crowd said everyone in the country knew his pictures; he drawed girls mostly, and the magazines paid him big money. I never seed none of his pictures yet, but I ain't much on art.

"Young sports are funny fellers. I guided two one time and they was a great pair, always getting some gag off on the other. The dead-water were only big enough for one canoe to hunt and the first night both of them wanted to go out. So we all went and a moose walked out. Both of them lads shot him and then they goes back and throws cold hands for who owns him!

Lucky shots? Yes, I seed lots of 'em; every guide does, I guess. Most city sports never get no practice with a rifle unless they serve in the military and keep shootin' a lot, and when one of them gets in the woods the distances fool him; they don't look same as the flat country does. So the ordinary sport ain't much of a shot, and luck has got to help him out. One year in Quebec, first night of the season, I was out with a young feller, and we had an Injun paddling bow. Heard a moose walking in the marsh back of us while we was watching a cow; it was too dark to see horns, but when this feller grunts at the cow we thinks it is a bull and slides over quiet to it. A stick in the water scrapes the cedar canoe and our moose starts to run. My sport could not see it but shoots where he heard the moose runnin'; then the moose cuts across the stream and before I knows it that sport jumps onto his feet and takes a pot-shot over the Injun's head. We goes back at daylight—and back in the woods is our moose, dead; a bull all right, with fair-sized horns and an awful big body. A .38-55 killed him, awful light gun for moose, but that Hoxie bullet broke him up terrible inside.

CHRIS.

"Huntin' with a guide in the bow is no good; most of the time that man is scared to death, anyhow. Seed one fellow, a Canuck officer, come up here with an awful big gun. One day he lets the bow Injun shoot this gun; it knocks the Injun flat, and after that whenever that sport gets in the canoe with the big rifle that Injun gets out; he was scared of it. Did I ever know a sport to shoot a guide? It may happen in your country, but I never heard tell of it in these north woods. Closest I ever did hear was last fall; an Injun I know was walkin' back of a sport when the .405 went off from the sport's shoulder and the Injun had a fit! Somehow most of them huntin' accidents seem to happen down in the States; mebbe you got too many hunters down there."



HANK IN HIS CANOE.

"I know a fellow that shot a good moose last year and lost him," ventured the Tired Hunter; "don't you ever find such moose dead in the woods?"

"Sometimes we do, but when a moose is too hard to find when the trail is fresh it's all luck findin' him later. At one club where I used to guide there was a fine old sport; got his moose every year for four years handrunning. The next year he shot a bull and lost him and had to go out without seein' another good head. Couple of weeks after he left some Frenchies was huntin' a short cut between two lakes and their noses took them to that moose. The scalp was no good of course but they sent the horns to that old sport and he sent them a ten dollar bill. That was a lucky find. Last year I knew a sport, the Major they calls him; he only hunted one week. Shot a big bull one night climbing out of the water and tracked him all next morning; never found him. Next night the Major hunts another lake and gets a nice head; he had to go out two days after. That's luck, good luck, and the Major were the sort of feller that deserved it too. About a month after that, long in October, two fellers was huntin' this same lake. I called a bull for one and he shot it, 61¾-inch spread and 30 points. We worked over that moose for a couple of days, cleaning up the head there so as we could get it down an awful narrer trail. One night the other sport takes it into his head he wants to go canoe riding in the moonlight, what for I dunno, so we goes out and takes a rifle along for deer. He got his moose early that season. The carcass of the Major's moose lays at t'other end of the lake and as we was going past it quiet like, somethin' black stands up back of the rotten meat and looks at us. 'What's that?' says my sport. 'It's a bear,' says I, just like the song my youngest boy is always singing, so he shoots a few times and I has an awful big bear to lug down that trail besides the old dammer of a moose. I dunno if I was pleased or not, but the sport was most as pleased as the one what shot the moose in the nose."

The T. H. ventured the remark that this was somewhat careless, but old Hank could not see it that way.

"It was dark as blazes and before the full of the moon in September, but my sport said he ain't never heard anyone call moose and was crazy to shoot one. So I makes a bark horn and tried a few calls on the lake that evenin' but got no answer. Just at dark as we was getting ready to leave I hears a moose splashin' round near the shore and runs the canoe up quiet like to where we can see his horns showing awful white, for they was just out of the velvet. My sport wants to shoot him in the neck, but it was dark and he guessed the wrong way the moose was pointin' and shoots him in the nose. Then the bull gets awful wild and runs around a lot and my sport shoots all his cartridges and loads up again. The moose tries to get out on the shore but the brush was too thick, so we gets him. That was a funny set

of horns, 50 inches and 17 points; the palms ran back quite a ways but they was not over five inches wide nowheres. It must have been an awful old moose; mebbe he was glad to die."

"I've read somewheres that the wolves usually get the old animals," said the Tired Hunter in a sleepy voice, stifling a yawn and making a valiant effort to disguise the fact that he had been dozing.

"Never saw no wolves on this side of the river, but they get a lot over on the other side. The old Tammas I was tellin' you about shot one 6 feet 6 from tip to tip, and over in Ontario they run the deer hard. Ever hear one howl? Well, you'll know what it is as soon as you hear one, let alone four or five. Your back hair will sort of rise up and tell you. They don't show themselves much and they are awful cute and hard to shoot. Last year two guides I know was over to the Lake St. John country and their sport sent them down river in a canoe to another camp for grub. Comin' quiet around a bend in the river they hears a lot of growling and sees a pack just finishing up from eatin' a caribou, so they opens up on 'em with a .22, the only gun they got with them. They was lucky, shot one and hit two more, went on to the next camp, gets a big gun, comes back and finishes off the two they hit before. One of them was a pure black wolf. A feller gets $15 bounty on a wolf in these parts, takes the hide to the county seat, swears to the killin' of it and lets them clip the ears. He can sell the hide; it ain't spoilt none. Did you ever get a caribou?"

The Tired Hunter awoke from his peaceful slumbers and admitted he never had, at the same time gently suggesting it was quite late. Playing the part of the Wedding Guest to a backwoods Ancient Mariner had begun to lose its charm for him in view of another day's hunt and awakening before daylight.

"Well, you can blow out the lamp when I tell you how a green guide lost one for a sport I know. They was sleepin' in a camp with some other sports and one day this sport and his Frenchie goes down to the canoe landin' early and sees a little animal in the water. 'What's that?' he says to Adelard, seein' that Adelard was bein' paid for knowin'. 'Ah, monsoo, it is a funny little moose; look at the little horns, so crooked.' Says the sport, 'Let's drive it up to camp and show them fellers the game is comin' right into the cabin,' and so they tries to circle round the little moose, but it was not feelin' playful that mornin' and leaves them sudden. Back they goes and tells the rest of the gang the story, and they say Adelard carried on awful when he heard it was a caribou, for they don't come out of the woods much before heavy snow. Do you want another blanket before I put out the lamp?"

But the Tired Hunter answered not, having departed to the land of slumbers to dream of the big head that would be his next day. And strange to say that dream came true.

LARGE AND SMALL BORES IN SHOTGUNS

THE 20 GAUGE

CHARLES ASKINS

Some years ago, when the 10-gauge was in pretty general use, a great 12-gauge wave passed over the country. People convinced themselves and labored incessantly to convince the other fellow that the 12-bore was really a superior weapon to the 10, and that anyhow it was a disgrace to use such a cannon as a 10-bore. Self-righteousness, sentiment, manufacturing interests, and a deal of actual quality combined to wed every field and trap shot to the 12-bore.

The sentiment, logic, and argument once applied in favor of the 12 has been switched to the 20-gauge. The man who uses one of the small guns has a feeling of superiority as a sportsman to his benighted fellow of the big gun, and he is not slow in making his claims public. He stands up in the marketplace and cries with a loud voice: "Look at me, ye sinners and men of little faith, ye toters of cannon; here am I shooting a 20-gauge gun and giving the game a fair chance—come all ye and do likewise or be damned to ye!" And many a miserable youngster gets bluffed into using a 20-gauge when he has no business to.

I am partial to a 20-bore myself—think that for certain people, for certain uses, it is the best shotgun to be had. But I don't like to be bluffed into using any particular gun; don't like to take the judgment of anyone else in preference to my own. He may know more than I do, but I know, myself, maybe, better than he does, and I know what my gun has to do, what game it is to be used upon, what the shooting conditions are; and I mean to use my own judgment whether it is good or bad.

I do not believe that sentiment should govern in the choice of a weapon; neither do I consider it any more sportsmanlike to use a 20-bore than it is a 12 or any other gauge. All this talk about a man being a pot-hunter because he doesn't shoot a small bore gun is plain rot—so it seems to me. No man worth mentioning is a pot-hunter any more, considering a pot-hunter as one who shoots his game on the ground or on the water. Game is too scarce; after working hard for a chance on the wing, we cannot afford to sacrifice our pleasure for meat—and we don't.

Moreover, the most difficult shots of the most difficult wing shooting we have today, waterfowl shooting, can be had only with a big bore, long range gun. The man who can stop a passing wild duck with a 10-bore gun at sixty yards has performed a far more worthy feat than he who has killed the same bird with a 20-gauge at the limit of its range, thirty-five or forty yards. The graduate shotgun expert, he who can judge the speed and distance of his mark at long range, who can lead twenty feet and place his pattern on a mark traveling a hundred feet a second, must in the nature of things be the man who has learned his art through the use of a gun which will regularly reach away out and get them. The 20-bore on wild fowl is for the man who is content to take birds close in, birds within the limited range of his gun, and he does not require the same order of skill as he who wields a big, far-killing weapon.

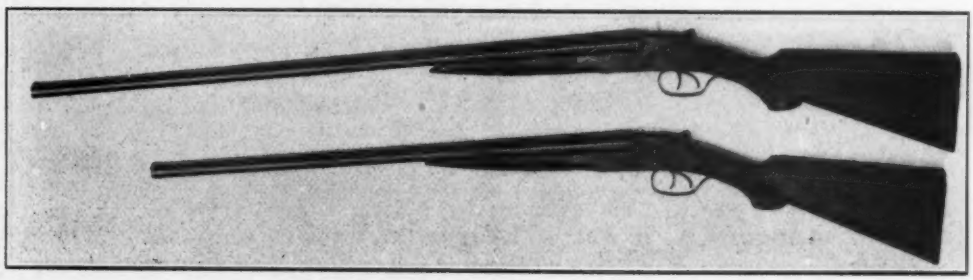
As a matter of fact, if a man has the disposition to give his game a sporting chance, to pit his skill fairly against the whirr and dash of winged quarry, it is shown, not by the gauge of his gun, but by the degree of choke and the size of circle into which his gun shoots. Guns of all gauges, of like degree of choke, shoot into about the same

size circle at any given distance. It is just as easy to place the pattern of a cylinder 20-gauge on the mark as it is a cylinder 10-gauge, and, so far as sportsmanship is concerned, men who shoot cylinder guns are to be classed together, regardless of the bore of their weapons.

There is another side to this story, however. Certain species of small game like woodcock, ruffed grouse and quail, are uniformly shot at short range, and the man of the large bore is liable to maintain that he must use a cylinder gun or else riddle his bird. His argument is sound, too, in some respects, for should he fire a full choke 12 bore at a twenty-yard quail, the bird would be cut into mincemeat. With him it would appear to be either a case of shooting a choked gun tearing up the bird or else opening up the bore of his piece and throwing such a wide circle of shot that but trifling skill is required to place it on the mark. The correct thing for this man to do is to take up the small bore, 20-gauge preferred, and by leaving the choke in it, narrow the killing circle until it equalizes his skill.

The field shot who has acquired great skill, who has ample opportunities to entirely by the weapon he shoots. A novice, who at best can bag no more than one bird in five, is not to be blamed for favoring the arm with which he can kill the most game. He would not be more of a sportsman, but rather more of a fool, if being able to bag but the one bird in five, he adopted a weapon built for the crack who regularly gets four out of five. The shooter's horse sense should govern. If he is a 50 per cent man when using a cylinder 12-gauge, and, by way of giving the birds a chance, he replaces it with a full choked 20, giving the birds a chance, but himself none, we may commend his sportsmanship openly, but secretly are sure to class him with the bull that butted the locomotive.

Nevertheless, notwithstanding the foregoing, for the express purpose of shooting quail, woodcock and ruffed grouse, also snipe where they are plentiful and tame, I have no hesitation in recommending the 20 gauge, even for the beginner. These birds are killed regularly at distances from twenty to thirty yards, and with one barrel improved cylinder and the other modified choke, the shooter has every chance to



THE LONGEST GUN, 1¼ GRADE ITHACA, 20-GAUGE, 30-INCH BARRELS, WEIGHT 5.13 POUNDS. THE SHORTER GUN IS THE SAME GRADE, GAUGE AND MAKE, WITH 24-INCH BARRELS, WEIGHT 5.2 POUNDS.

shoot, and who is desirous of giving upland game a fair chance to escape should shoot a 20-bore, either full choke or modified; then only is he entitled to felicitate himself on his sportsmanship.

When all is said, however, a shooter's sportsmanship is not to be judged bring his bird to bag that he could have with any other gun. The improved cylinder barrel is surely going to drop everything it is held upon up to at least twenty-five yards, and with equal certainty the modified barrel will go right on another five yards farther. The man who cannot kill quail, cock

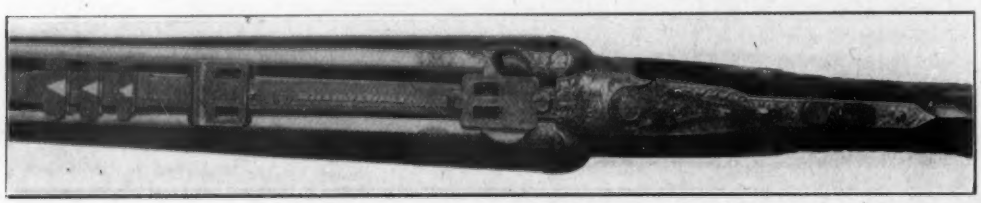
and grouse with this kind of gun can't bag 'em with any gun—my opinion.

I happen to live in a section of the country where the 20-gauge is in very common use for quail shooting. When Oklahoma was admitted as a state, especially in that region known as the Cherokee Strip, the settlers were "hard up," crops were hurt by drouth, and many of the people depended on market shooting for a living. Probably for this reason the Strip contained more skilled quail shots than any like territory in the world. Gradually these men came to use the 20 bore—this for various reasons—it would kill as many quail as any gun, was lighter, and, since much of it was hand-loaded, the ammunition both weighed less and cost less.

In that favored quail country today as many 20 bores see service as any other gauge; the man with the 20 doesn't consider himself in the least handicapped, neither is the gauge of his gun accepted as any excuse whatever for a light bag. For that matter, the man of the 20 gauge rarely makes a light bag, being generally an expert who knows precisely what he is doing and what his gun can do. I think the 20 bore record is something like nineteen quail straight and 160 shot on the wing in one day. This was accomplished with a Parker 20, the right cylinder, left quarter choke.

Double 20-bore guns are made in America by the Lefever Arms Company, Hunter Arms Company, Parker Brothers, Ithaca Gun Company, Stevens Arms and Tool Company and others. Fred Adolph makes a specialty of this gauge in very handsome handmade arms. In addition the small guns are imported to quite an extent. The Daley and Sauer, German products, are very popular; so is the Francotte, and in English arms the Greener and Westley-Richards hold their own with the finest home-built weapons.

To the best of my remembrance the Lefever was the first American 20 gauge built, but probably the Parker Brothers did the most to popularize this gauge. The guns of the Hunter Arms Company as well as those of the Parkers have rather heavy frames, their weapons running to heavier weights than those of some other builders, the Ithaca Gun Company, for instance. American 20 bores range in weight from 5 pounds to 7½, with barrel lengths of from 24 to 32 inches. Probably the average Parker or Smith 20 weighs about 6½ pounds; the average Ithaca something like 6. Imported guns run in weight about the same as the Ithaca.



A 20-BORE, THREE-BARRELED GUN (.20-20—.25-40-117), MADE BY FRED ADOLPH.

As noted above, the 20 bore can be had in a weight of 7½ pounds and with barrels 32 inches long. Such a gun is built for the special purpose of trap or duck shooting, and as exemplifying what can be accomplished with a weapon so small as a twenty. With the weight of piece and barrel length given, very heavy charges may be used, up to 2¾ drams of powder and one ounce of shot. Some have even used as much as 3 drams of powder and an ounce of shot. Indeed Cashmore once built a twenty for Dr. Carver to handle 3½ drams of powder and 1¼ ounces of shot; but one experiment of that kind satisfied both the gunmaker and Carver.

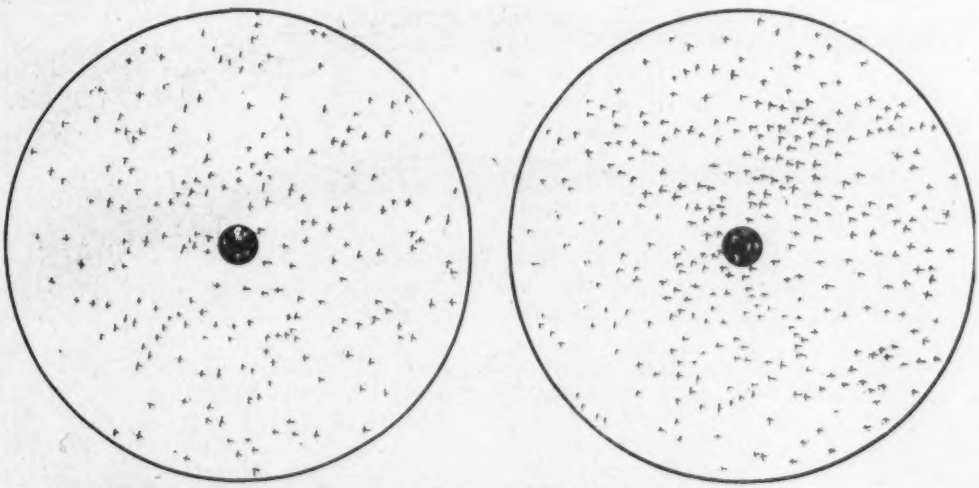
Any 20-gauge load above 2½ drams of powder and ⅞ ounce of shot de-

velops high breech pressure, and in loads exceeding that, dangerously high pressure. Charges in excess of 2½—⅞ are to be used only in strong, heavy guns, and where it is desired to shoot loads which might be considered abnormal for the gauge, I am inclined to think that both the manufacturer of the gun and of the powder should be consulted, since their reputations are placed in jeopardy.

When a man owns a 20-bore and no other gun, it to be used on marsh as well as afield, preference should be given to a rather heavy arm and stiff charge—say a weapon of six and a half to seven pounds, chambered for a three inch shell, loaded with 2½ drams of powder and the standard amount of shot. Such a gun is adapted to both trap and duck shooting.

Notwithstanding the superior shooting powers of a heavy gun and load, most men would give preference to a weapon weighing from 5¾ to 6 pounds, chambered for the standard length of shell and shooting the standard load of 2¼ drams, ⅞ ounce. Bored full choke, this dainty arm will be found to kill any species of winged game very uniformly up to 35 yards. Indeed, I cannot figure that the 12 gauge is entitled to give the little gun a handicap of more than five yards, and in trap shooting, were the small gun placed at thirteen yards, I am quite convinced that it would hold its own with the 12 bore on its present mark.

Tournament trap shooting at this time is run on the high-geared machine plan, nothing being allowed to clog the machine, consequently the small gun cannot be put on a forward mark, but were the craze for rapid action and thousands of birds thrown once ended, I am sure that given a proper allowance hundreds more of 20 gauges would be seen at the traps, much increasing the pleasure of such competition. Fact is, the very nature of trap shooting at artificial birds with the hundreds of shots fired in a day, should logically call for a light gun, light, cheap ammunition, and distance handicaps according to weapon and load. We may reasonably expect just this change in trap shooting within the next few years.



ILLUSTRATING 20-GAUGE PATTERN AS COMPARED WITH 10-GAUGE PATTERN. CUT TO LEFT SHOWS THE 20-GAUGE PATTERN, AND ONE ON THE RIGHT THAT OF THE 10-GAUGE.

Heretofore I have been devoting my space to the double 20 bore, but there are pump 20s on the market, weapons of such merit that they should be given due mention. Both the Winchester Repeating Arms Company and the J. Stevens Arms and Tool Company are

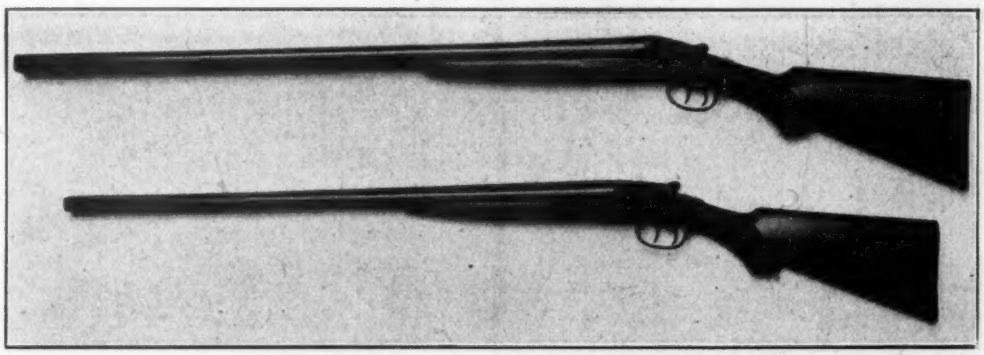
building splendid 20-gauge repeating shotguns.

The Stevens has features which must appeal to many. It is a light weight arm, six pounds to six and a half, with length of barrel from twenty-six to thirty-two inches, choked to any degree specified, and chambered for a 3-inch shell, though it will handle the standard length with equal facility. I should prefer to use this gun with the shell for which it is chambered, not liking the principle of chambering for a long shell and using a shorter one, yet others have found that with the 2½-inch shell the pattern does not suffer. Using the 3-inch shell with maximum charge, barrel 32 inches, this Stevens' pump should give a first-rate account of itself at the trap, over decoys, or anywhere else.

I have such an excellent opinion of the Winchester 20 bore pump that I hesitate to give it all the praise due, fearing some one would think me simply out to boom the little arm. It is the best balanced and smoothest working pump gun that I have ever seen. The man who tried one and didn't like it would probably have to be prejudiced against pump guns, against 20 gauges, or both—even then the little piece would very likely get into his graces. The Winchester will take nothing but the standard length of shell, and since the arm weighs a bare six pounds the user had best be contented with the standard load.

The 20 bore, like the 28, is well adapted to shooting round bullets, being thus a handy arm for those who must travel light in distant game regions. Oliver Curwood, the Arctic traveler, carried a 20 bore Ithaca and no other gun on one of his northern expeditions, killing moose, caribou, deer, and much other game with the bullet cartridge.

Fred Adolph makes another "all round" 20-gauge, this time a three-barreled gun, of which the rifled tube is chambered for various cartridges from a .25-20 or .22 high-power to a .30 Adolph express, with power approaching an elephant gun. A weapon of his which should prove especially attractive has 20-gauge shot barrels and a rifle barrel chambered for the .25-40—117 rifle cartridge with a velocity of 2,900 feet and a power approximately the same as the Springfield Army cartridge.



THE EXTREMES IN SMITH GUNS; TOP GUN, 10-GAUGE, 32-INCH, 10¼ POUNDS; LOWER, 20-GAUGE, 28-INCH BARRELS, 5¾ POUNDS. BOTH IDEAL GRADE, RETAILING AT SAME PRICE. PATTERNS ARE SHOWN IN TWO PRECEDING CUTS.

In figuring the degree of choke to be placed in 20 gauge barrels for any particular purpose, certain facts are to be kept in mind. A 12 gauge full choke or 75% gun with standard load of 1⅛ ounces of number 8 shot will place 337 pellets in a 30 inch circle at 40 yards; a 20 bore 70% choke gun will pattern 245 similar shot in a 24 inch circle at 35 yards. This means that with the 12

gauge there is 43% of a shot pellet to every square inch within the circle, and with the 20 bore 42.5% of a pellet in each square. Considering that the smaller gun has a considerable greater striking energy per pellet at its shorter range, we can readily appreciate that the killing power of the two guns is practically equalized when one is shot at 40 yards and the other at 35.

The above applies to full choke guns, it is understood, but many select cylinder 20s, some under the impression that a 20 bore, if choked, would shoot closer that any other gun, while others who are very quick shots properly prefer an open gun. I wish to make it quite plain, even at the expense of reiteration, that a cylinder 20 has as much spread as a cylinder 12, while a full choked 20 has a slightly wider killing circle than a full choked 12. Take my word for this, write the gun builders, or, better than either, try a number of guns at the target yourself. Accepting my conclusion as true, it follows that if the 20 is to be used on any game other than quail, at distances above 25 yards, in place of a true cylinder have the first barrel quarter choked to pattern 175, and the second barrel half choked, pattern 210. The quarter choke 20 has rather less power than the usual plain cylinder 12—pattern 175 for the 20 to 180 for the 12—and surely the cylinder 12 will be recognized as having pattern open enough for any purpose.

For my own use I am not satisfied with any gun which patterns less than 200 number 8 shot at 40 yards, and my 20 gauges for quail and snipe are ordered to pattern 200 with the right and 225 left. No man need consider his personal needs a criterion for everybody, however, and some will like a gun to shoot a more open pattern than mine and others closer. Naturally a duck and trap gun, 20 gauge, should shoot as close as possible.

STEVENS 20-GAUGE HAMMERLESS DOUBLE GUN.

In the 20 bore for the uplands or field shooting no great variation of loads or sizes of shot is demanded. For such an arm, where it is to be used on chickens, ruffed grouse, woodcock, and quail, the best size of shot is 7½ chilled. Where the work is confined to quail and snipe, especially in guns with open pattern, number 8 shot might do better. Some advocate very small shot for a 20 bore, 9s or 10s for quail and snipe, but these tiny missiles lose velocity so rapidly, and are so readily affected by the wind that of late years I have made

STEVENS 20-GAUGE HAMMERLESS REPEATING SHOTGUN.

it a practice never to use shot smaller than 8s in any gauge.

The owner of a heavy 20 bore, a wild fowl gun throwing maximum charges, may find it well to use shot as large as 6s—either 6s or 7s will be found best for ducks, depending on the pattern the gun makes with them. Generally speaking, large shot develops less friction and permits heavier charges without undue breech pressure than pellets smaller. Were I loading my shells with as much as 2½ drams of powder, I should select nothing smaller than 7½ shot, no matter the game.

Here is the 20-gauge table corresponding with that given previously for the 28-gauge:

Table of Weight of Arm in Proportion to Load—20 Gauge.

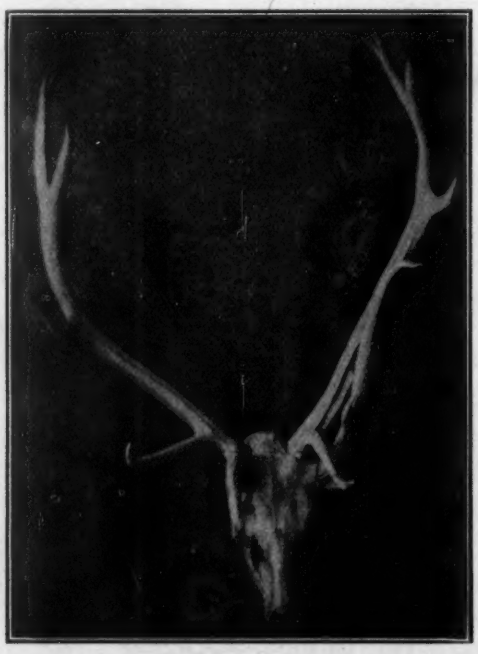
LOAD—			WEIGHT OF GUN—		
2	drams,	½ ounce	4 pounds	4	ounces
2⅛	drams,	⅝ ounce	4 pounds	12	ounces
2¼	drams,	¾ ounce	5 pounds	4	ounces
2¼	drams,	⅞ ounce	5 pounds	12	ounces
2½	drams,	⅞ ounce	6 pounds	4	ounces
2¾	drams,	⅞ ounce	6 pounds	12	ounces
2¾	drams,	1 ounce	7 pounds	4	ounces

The third, fourth and fifth loads are those in common use; the sixth and seventh loads are not to be had in American factory loaded cartridges.

(To be followed by article on 16-gauge)

A BEAUTIFUL CARIBOU HEAD.

Owned by Dr. H. M. Beck of Pennsylvania; 40-inch spread; killed in Newfoundland; possessing wonderful brow antlers.



FREAK ELK ANTLERS.

Owned by Joe L. Work, an Ohio sportsman; considered a rare specimen.

THE WALL-EYED PIKE

ROBERT PAGE LINCOLN

Piscatorially speaking, from my own especial and conclusive viewpoint, the wall-eyed pike is my prime favorite, providing you let the black bass remain in a class all by himself. Were all fish to be judged as together I think I would place preference upon the large-mouth bass; but taken, as in classes, let me remark upon the beauty of the pike, both as a fish, of sufficient elegant looks, and second as an introductory to a superlative sporting proposition. You have, in season, sir, told voluminously of the gracefulness (akin to the gods) of salvelinus fontinalis; of how with the erect-winged dry fly you have taken him at surface feeding; and you have used the wet fly when all other systems have failed and you have by far had the greater success using this said fly; you have had your salmon angling, sir, and your small-mouths have been taken in, in season, and a vast horde of other fish have come to your net, in season, but, I charge you, sir, find a fish that will come to net out of the usual rut of the seasons and we will talk shop. So then I shall call your attention to the dominance of the wall-eyed pike, and I shall catch him when the November or the December gales are threshing the earth; when all good anglers are home beside the fire, with rods cased and flies corked up well in bottles away from the devastating moths. Then let me be out, bundled up well enough, on the rivers or the open lakes, and I shall hunt out the pike in his native home for a trial and a most exhilarating one at that. The pike is not a fighter—has never been known to give the enthusiastic follower of the immortal Walton a lordly battle for supremacy; and in the days of summer he may have been very dull indeed; but hold—there are days when the frozen waters cast an alertness along his backbone; and the very demon of courage assails him and he will take the lure with a vim and pugnaciousness that equals, even overshadows the top-notch leadership of mycropterious salmoides, the large mouth, at his best. Esox, the pike, is a friend of mine; but let me reveal some of his inner history. In common with others I lay á bold charge against him. He is a barbarian;—a cold-hearted and cold-blooded rascal; for he will eat not only his own impregnated spawn, but his minnow offspring. And this seems cruel and baleful enough as it is. Witness those eyes, as chilly as jade; staring, fixed upon one mark, unblinking, penetrating, heartless; as though to wither everything before them. But for all that he is a fine sporting proposition—what with a clean, unslimy body; cool, hard and sweet fleshed, he is always an open delight to the fisherman. The pike, and the wall-eyed in special, belongs, not to the pike family, but to the perch, as has once too often been pointed out. As a rule the wall-eyed perch average two, three or four pounds; but large specimens are always taken, and some fine ones go up to twelve, fifteen pounds. Throughout the middle west country the wall-eyed perch run to a very good size, and it would seem that they have the leadership in this respect over the north, for throughout Minnesota the run in weight is always conservative. The wall-eyed perch is often confused with the Great Lakes, or Great Northern Pike. The Great Northern Pike is individually a fish for itself; as is the common, or eastern pickerel; as is the muscallonge. In all these fish there is a great deal of resemblance, and their exact identity is often enough confused, one for the other.

Often, in common with other fishes, the pike run in schools, and once the angler finds such a school he is apt to have sport of a kind that is fast and exciting, to say the least. There is one thing about the pike and pike fishing. In cold weather the fish is at his best. I have made above mention of the fact

that he is not identified as a fighter of the exceptional rank; but certainly in November and in December, along the Mississippi River you will find some specimens that will give you the time of your life and no mistake. I have, in December, taken them when the line has frozen stiff in my hands, but it is good sport, for the simple reason that but few will then go out, and you always have luck, more or less, if you have ascertained during the summer months just where they stay. Where we have mild winters, fishing for the pike along the rivers is a possibility way into the heart of the season; and I would far rather fish then for them than in the balmy months of June and July.

You will always find your pike lying off of the convenient sand-bars; in and among obstructions, or deadheads (submerged logs), and along beside the weeds, should any such offer themselves as feeding grounds for the active fellows. Study your lake carefully, and ascertain just how the bars are lying and then fish accordingly. When you strike a bar and you have luck, then row back over that same place, and thus back and forth, and you will always have success and much of it. There is another thing. You can never tell when you are going to hit onto the big fellow, which is liable to get away if you do not look out and do some correct trolling. Trolling is the system usually in force. While there may be such a thing as casting for them, trolling covers all the demanded points, and there does not seem to be any substitute. Give me a five and a half foot Bristol steel rod, a durable Kingfisher line, a decent little regulation 100-yard reel and that is about all I care for as far as the greater part of the tackle is concerned. And say, speaking of bait, there are many systems and I may be able to offer a few suggestions that may not be out of place. Usually the frog, leading all other live baits, seems to have the conclusive preference, but then there is such a thing as a nice, live, healthy, wiggling live minnow, or perch, that will amply do as well. Usually all that is needed is a large bare hook; and the minnow is inserted upon this so that it will troll natural in the water. In hooking on your minnow, always be sure that the backbone is not touched. The mistake most fishermen make is to jab the hook through the backbone—and that ends the life of that said minnow. Strips of red flannel at the head of the hook helps much to attract the fish. A spoon, or spinner, is not a necessity. The pike seem to call for natural things, and a live bait wins where an artificial wile will exactly register no catch whatsoever. I have used what is known as a pace and hooks, which is simply one gang of hooks connected with another by means of a small chain. The one gang is hooked to the frog's head, the second gang is hooked on behind. Forward of this there is a weed guard that prevents the hook getting tied up in the weeds.

Early winter fishing for the pike, as I have before this mentioned, has an array of fascinations on par with the best. Tuck yourself away, for instance for a couple of days, in a tent in some convenient wood, sheltered from the winds; and make yourself comfortable for a few days, and you will not only enjoy your fishing the better, but it will be something eminently out of the ordinary. There is nothing so prolific of true pleasure as to come in from a day in the cold winds and invigorating air, to the promise of contentment offered by a warm fire and its aftermath of hot coffee and food fuel that the body is so craving for. Then the whole body will be in a state of exhilarating relaxation; and with a good fire and blankets near at hand, the night may be made an exceptionally pleasurable one.

You say there is no sport for the fisherman after the cold has set in? Sir, have you tried for the pike? When all others are away from the haunts of fish, why not break the monotony of things and enjoy a few days with esox, the pike-perch, and know the other extreme of pleasure!

A WEST TEXAS RABBIT DRIVE

C. C. WALSH

To those lovers of outdoor sport who have never participated in a West Texas rabbit drive this narrative may prove interesting, and possibly somewhat instructive, for be it known that in many portions of the plains country of Texas, as well as in Arizona and California, there flourishes a rodent quadruped known as the "lepus Texanus," and commonly called the jack rabbit, a very extraordinary and unusual animal.

The jack rabbit belongs to the hare family, "leporidae," of which a peculiar characteristic is the presence of two sets of small incisor teeth immediately behind the ordinary incisors of the upper jaws, so that these teeth seem to be double, and in fact they are so. They live upon grass, herbs, vegetation and the bark of trees, drink little water, multiply very rapidly, and flourish in teeming thousands in many of the counties of Western Texas, particularly in Coke county, which appears to be the original home of the jack rabbit, with the longest ears, the thinnest legs and the heaviest bodies—so much so, in fact, that in recent years in irrigation and agricultural settlements they have become an actual nuisance and a real menace to the orchards, fields, gardens, and even the pastures of the farmers and ranchmen.

These animals have few enemies since the country has settled up and the wolves, coyotes and serpents have been exterminated by the actual settlers; hence their uninterrupted and rapid multiplication has become a living question, and the matter of eradication is constantly before the people who suffer from their insidious depredations.

The jack rabbit is not a symmetrical animal, nor is he in the least a handsome creature, but the all-wise being who created him evidently had in mind the idea that "self-preservation is the first law of Nature" when He gave him his wonderful power of flight. He is not a combative creature; on the contrary, he is very timid and a real coward when driven to cover, and is easily dispatched with a club or any other handy weapon. They have at this time comparatively few enemies, and against these they are guarded by their invisibility when crouched in the "forms," by their keen sense of sight and smell, and by their wonderful acuteness of hearing, for the augmentation of which their great ears have providentially been developed; but if danger comes too near they can usually escape by flight, a word that approaches literal accuracy as a description of a series of high bounds, each from fifteen to twenty feet in length, with which their great hind legs carry them over the ground.

The jack rabbit when grown weighs from eight to twelve pounds and measures from twenty-eight to thirty-six inches from the points of his long black-tipped ears to his hind toes when stretched out in a "sure enough" run when really frightened. Unlike the small cotton-tail, or bunny rabbit, the jack rabbits do not burrow in the ground, nor live in prairie dog holes, nor, in fact, do they seek any shelter other than that afforded by a chance bush, a brush thicket or a patch of weeds in which they can "squat" with ears touching the ground; neither do they live in groups nor communities, but they go upon the principle of every fellow for himself; it is rarely a case that two or more are seen together. They depend for their protection largely upon their acute sight, sense of hearing and more particularly their speed, and when they get limbered up, when really frightened, there is something doing in the running line and no mistake. No ordinary horse or dog can keep the pace with them, and even a greyhound has difficulty in overtaking one with a reasonable start. They are very shrewd in throwing a dog off the trail; it is no unusual sight to see them

EARS FROM A TEXAS JACK.

This pair of jack-rabbit ears was sent us by the author. They measure 6½ inches from skull to tip.

make a run and out-distance the dog; then they will turn and retrace their steps on a back track for some distance, then give a tremendous leap to one side and squat in the grass until the dogs run by and lose their trail. When in flight they are stretched out their full length and their immense black-tipped ears stick out perfectly straight as they go bounding through the air at lightning speed. Under such circumstances they are an interesting sight.

The jack rabbit has never been much in demand as an article of food until in recent years; they are now served by all of the leading hotels of the South and many are shipped to northern hostelries, where they are looked upon as a very attractive article of food. If taken when half-grown the hams and loins are most excellent and are preferred by many to even chicken or venison. They grow to be very plump and fat in seasons when food products are plentiful, and the meat of the half-grown rabbit is very fine and juicy.

It has only been within recent years that the jack rabbit has become a nuisance and a pest in Western Texas

Before the state and counties placed a bounty upon the bob-cat, the lobo wolf, the coyote, as well as other "varmints" which were the actual enemies of the rabbit, they were kept thinned down, but after the natural enemies had perished from offers of the large bounties, the jack rabbits began to increase and multiply in such alarming numbers as to become very destructive, and some means had to be devised by which their increase could be curtailed. Of course some few of the farmers could build "rabbit proof" fences around their gardens, their fields, and even their orchards, but when it came to putting such a fence around a ten or twenty-section pasture the cost of such a structure became a serious question, so that it finally resolved itself back to the old, old rule of the survival of the fittest and the extermination of the transgressor.

This evolved the modern "rabbit drive," in which the best means of extermination has been mixed with pleasure and genuine sport, for the word goes out to the entire community that on a certain day there will take place a rabbit drive, and everybody is invited to be present and assist in some capacity. Usually from three to five "round ups" are made during the course of the day, and while the men and older boys make the drive with their guns, the women prepare a barbecue dinner at some convenient place for all hands.

At a certain point in Tom Green county, Texas, a drive was to take place in what is known as the Mount Nebo settlement. Everybody was invited, even the politicians and candidates, as well as the business men from the county seat, San Angelo, twelve

miles distant. There were present about 100 men and boys, and when we say boys we mean young men from 18 to 20 years old. About fifty of the hunters were on foot and an equal number on horseback. The place selected for this particular drive was an ideal one from the sportsman's point of view. The ground was very level and made a gradual and gentle slope from the foot of the mountain. Mount Nebo rises majestically into the air to a height of about 1,500 feet, and stands like a lonely sentinel on guard over many thousands of acres of ranch and fertile valley land, a large part of which has in recent years been placed in cultivation. The surrounding pastures are covered with a heavy growth of mesquite timber, interspersed with chaparral, cats-claw and cactus of the prickly pear variety, which, by the way, is to be strictly avoided by a hunter in thin trousers. At the intersection of two large pastures containing between ten and fifteen sections of land, or between 8,000 and 10,000 acres, entirely surrounded by a barbed-wire fence, those in charge of the drive had previously stretched around this fence a wire rabbit-proof netting for a distance from one-half to three-quarters of a mile each way from the corner of the intersection; in the corner of the fence, perhaps twenty feet wide and sixty feet long, had been constructed of the same rabbit-proof netting a trap with a single narrow opening not to exceed twelve inches, resembling a cattle chute in the entrance, with false sides, which always confuse "bre'r rabbit" when once inside. He finds it an easy matter to go in, but very difficult to get out, for the simple reason that while the jack rabbit is very fleet of limb he has not the least sagacity and his instinct serves him but slightly under such circumstances.

Having given the general setting and the "lay of the land," it only remains to describe the principal event of the day's outing. All those who were to take part in the round-up were called together at the "trap" and given explicit instructions by the captains in command, namely, B. M. Beaty, Chas. Brokaw, W. T. Mays and Wm. A. Posey.

"Now, boys," began Col. Beaty, as he stood in the midst of the eager throng, "we are here today for work as well as pleasure, and I am sure that you will find plenty of both and lots of it. This ten-section pasture which we have prepared to drive is just full of jack rabbits, and we want to 'git 'em out.' Now, all of you fellows that are on foot, including the candidates and politicians, will be stationed at 'stands' fifty yards apart up and down this wire netting fence, on either side of the trap. You fellows on horseback will retire in single file down this fence to the back end of the pasture, and when you reach the boundary fence you will scatter out about 100 yards apart and commence your drive for this corner of the fence. When you come to this small trap, close up your ranks as you approach; but of course most of you are old hands at the business, and so are the bronchos which you are riding, and therefore it will not be necessary to tell you that when the word is given to begin the drive, you will come back with a full head of steam, cover every foot of the ground in the pasture and give the rabbits no chance to take a back track. Kill as many of them as you can and we fellows will do the rest at the stands. Now every fellow to his place, and you men on horseback can all 'beat it' to the rear of the pasture"—saying which he waved his hands and every man scampered to his stand, while fifty horsemen "high tailed" it down the fence in single file for the rear of the pasture. The men on the stations assumed an expectant attitude of peaceful waiting for the next thirty or forty minutes and prepared for the big shoot by laying out their loaded shells and taking quick aim at imaginary jack rabbits, wildcats and coyotes vaulting through the air over the hummocks.

By this time the "outriders" have reached the point where the drive begins, and, acting upon the admonition of Colonel Beaty, their leader, they im-

mediately scattered out in "open order" across the pasture. The horses seemed to know intuitively what was expected of them, and being used to this character of work from previous training in rounding up cattle as well as jack rabbits, they entered into the sport with an intelligence and a seeming pleasure found only in horses on the Western range. In a moment they are in motion. The voices of the riders are let out to their fullest capacity and a merry din immediately ensues as the horses and riders head for the converging lines of the trap. In a moment, above the babel of voices, a shot rings out on the morning air, immediately followed by another, and another, and another from the mounted sportsmen all along the line. The rabbits are in motion and the drive soon becomes fast and furious, the horses running at break-neck speed, dodging in and out and around the mesquite trees, with shots following thick and fast from the riders and every moment some swiftly-running rabbit jumps high into the air and turns a double somersault as he receives a well-directed shot and falls limply to the ground. Everything and every horseman are moving with utmost speed toward the trap and the noise and the shooting becomes incessant; fatigue and even danger is forgotten and the discretion of the riders is thrown to the winds as they press forward in utter recklessness of danger from unseen prairie-dog and gopher holes and the rapid turning and whirling of their horses.

During this time hundreds of rabbits have "bitten the dust," while other hundreds have scurried on ahead of the horsemen in an effort to escape, not realizing what awaits them a little further on. They are really and literally jumping "out of the frying pan into the fire," but they do not know it. And while these animated scenes are taking place at the rear with the horsemen, what are the conditions at the front? Those stationed on the outposts can now dimly hear the sound of the approaching horsemen; the incessant yelling and the muffled sound of the guns convey the information that it is time for the footmen to "clear ship for action." In a moment one sentinel squatting on the ground looks out ahead of him beneath the low branches of the trees and discovers a pair of long ears extended in the air, attached to a body which is approaching in great bounding leaps. It is a rabbit fleeing from the din of the horsemen. As he comes within range of the footmen's gun and another great leap through the air, there is a sharp report, the aim was well directed and with a spasmodic kick a white-bellied rabbit lies sprawling on the ground.

But there is now no time to consider how it was done, nor to discuss the accuracy of the shot, for all along the line and all through the pasture and in front of the marksmen the game is rushing, running and jumping at top speed in every direction; pairs of ears and great, frightened eyes can be seen and the time for the sport of the footmen is at hand. The guns are roaring on every side. The horsemen are rapidly approaching from the rear, shooting and yelling. The footmen along each line of fence are firing as rapidly as they can use their pump guns, shooting to right of them, shooting to left of them, shooting behind them, volleyed and thundered, and at every broadside many a rabbit dropped to rise no more.

As the lines close in upon the narrowing circle the numberless rabbits become confused; they lose their bearings and begin running in every direction without any idea of where they are going except with the hope to escape somewhere; they see the barbed wire fence, but they do not see the small, rabbit-proof wire attached to these fences. They dash headlong into the fences, are caught by the woven wire and fall back in dismay. They make another dash in the same direction and again meet with the same result, but it is their last trial, for by the time they get upon their feet again a well-directed shot from some marksman terminates

their existence and the ground around the woven wire fence is literally covered with the dead, white-bellied rabbits, so unceremoniously halted in their wild race for freedom. Now the horsemen who have brought their horses down to a walk, join in a great semi-circle with the footmen and close in toward the trap, driving the game to the apex of the triangle made by the fences joining at right angles.

The sight is inspiring and resembles a line of battle. The firing is continuous and deafening and the smoke rolls back over the horses in genuine battle style, while hundreds of rabbits are going to their doom at every shot as they approach the trap with but a single opening. Through this opening they rush with hopes of escape. Alas! they do not realize they are prisoners of war and doomed to death. A last mad rush is made by the horsemen and those on foot. The guns cease firing at a single command and the drive is over. The trap is filled with rabbit prisoners, but they are not fired upon, as it is unfair to shoot them when once in the trap. This sport is left to the smaller boys and their fun now comes in, for with a good, stout stick or the butt of a quirt they are soon in the inside of the trap dispatching with a well-directed blow on the backs of the head or behind the ears, the prisoner rabbits.

The count begins and in a little while it is discovered that the drive has resulted in no less than 1,500 grown rabbits, much to the satisfaction of the surrounding ranchmen and farmers; and while this may appear gruesome and contrary to the ideas of the humanitarian and the anti-vivisectionist, yet is is the only way to get rid of the pest and thus save and protect the growing crops, orchards, gardens and pastures to the inhabitants of the Western ranches.

HORNS FOUND IN TREE.

Picked up by R. W. Evans and party in Shasta County, California, in 1912. Similar to Robinson set shown in June number.

CAMPFIRE TALKS

By CHAUNCEY THOMAS

No. 33—Races of Men

The map of Europe has gone out of fashion. Perhaps the map of the world will change. Who knows? But let nations come and go as they will, races and geography remain the same. No matter how the boundary between France and Germany may twist back and forth, the Rhine flows on, and not all your battles can alter one inch of it. What can stop an army of a million men cannot stop a few yards of running water. And no matter what the color of the cloth that flaps in the wind over port and palace, over fort and farm, the races will stay right there. The Germans do not necessarily mean Germany, neither do the English mean England. Germany or England or Bolivia may be wiped off the map, but the German woman remains the same with her blonde-haired brood, the same as the negro still is black though he has become an American, and his dark seed eligible for the White House. Great is the law!

Forgetting those imaginary and comparatively unimportant lines on the map known as national boundaries, let us take a birds-eye glance at Europe.

Below us are three zones of races—the Latin in the south, the Celtic in the middle and the Teutonic in the north. These broad living ribbons stretch from the sea east to the line of the Slav that runs north and south from the Black Sea to the eastern nose of the Baltic.

Now, these four lines of race are much mixed along their contact edges. The distinguishing color of the Latin is black, of the Celt is red and of the Teuton is yellow. These three we broadly call white men, for from the Slavic line eastward to the Pacific we have totally different sub-species of men to deal with. Their hair is black and their skins shade from yellow to brown. The French seem a cross of the three white races — Latin, Celt and Teuton — and the Slav seem a cross of the white and the yellow races.

Now, the origin of all races, just like the origin of all other species, is still an unsolved mystery. Darwin did a great work, but a great reporter often makes a poor judge. The same with Darwin. Darwin collected a priceless mass of facts, but it is now acknowledged that his theory that the origin of species is due to natural selection is not sufficient, although it is probably one of the secondary causes. The difference between dogs and cats still remains to be explained. Also does the origin of the races of man.

The best guess of today is that the dark-haired Latins came into Europe along the shores of the Mediterranean from Central Asia, and made the Greeks and the Romans; that the Celts were indigenous to Europe, and that the Teuton came from the north, probably from where is now Norway and Sweden. But these guesses are so broad and so full of loop holes that they do not amount to much. This guess merely accounts for their presence and distribution in Europe, but it in no way accounts for the origin of these, or of any other, races of mankind. The whole matter is still as open a question as it was in Pharaoh's time. Great will be the honor of the man—he will rank with Newton, Shakespeare and Pasteur—who makes the discovery.

Now, what is a white man? Who is a white man? Were the Greeks and Romans white men? I doubt it. And of course the answer to these questions depends solely

on what we would call a "white man." If we call a "white man" some one whom a high-class German, French, English, Russian, Italian, Spaniard or American would have his daughter marry, then it is still more than doubtful if the Greeks and Romans were white men.

'Tis customary to speak of the Greeks and Romans as belonging to what we today call the white race, simply because it pleases the vanity of the whites to claim everything in history and in civilization as being due to themselves. But the Arabs originate algebra, the Jew gave to the world its white religion, the Chinaman invented things too many to name here. The Greek gave us our art and Roman our laws, but were they white men any more than is the Arab, the Hebrew, the Chinese or the man of India a white man? Every great man on earth did not belong to the white race, remember. The greatest empires and the greatest wars have not been among the whites, but among the yellows and the browns. The religion that numbers the most kneelers is not white, but brown, and with the yellow followers of Budda a close second or third.

The Jew, the Chinaman and the Teuton are the three great races of the earth. The Latin and the brown have had their day, and the chances that the black will ever rule the world are remote. The Chinaman lives by his stomach; he fattens on what would starve other races. The Jew lives by his wits. Without a country for centuries, the prey of all other races, he, the Jew, the shrewdest, most adaptable of mankind, has kept his race, his religion and his language the most pure. The Teuton lives by his iron hand. He exterminates everything in his path, be it an animal like the buffalo, a bird like the wild pigeon, a human race like the Indian or the black tribes of Africa.

Of all the races the white is the most cruel, the most destructive and the most intelligent, and by these methods he has conquered most of the world, except always the Chinese. The Chinaman is the most honest, the Jew is the most persistent. In the American cities today the Jew is gaining the most, is surpassing all other races, while on the farm the Latin has the growing lead. The Teuton is slowly losing in both American city and country.

While Europe in war is turning Teutonic for the first time in history, America in peace is turning Jewish and Latin. This, as I said before, is the greatest world change of this inter-racial war and of this age. Anyone who travels much, who "sees America," knows this to be true beyond dispute. New York city, New England, the Pacific coast, all tell the same story. The Italian has begun to replace the negro in the cotton fields. The Latin and the Slav make all our steel, they build all our railroads. Our great manufacturing and farming centers are even today in full political and financial control of the Latin and the Jew. Only the stay-at-homes, for matters of patriotic or racial sentiment, attempt to deny this all too apparent fact. The old American is doomed, and in two generations will be no more. (See my Campfire Talk, "The Old American," in the October, 1912, issue.)

When we speak of races, or of a yellow or a white man, remember that the term is only comparative. There is not a pure white, a pure yellow, black, brown or red man on earth. In the veins of every human being flows a drop or more of black blood, negro, if you please, and it is accompanied by traces of other colors—brown and yellow, mostly. Men have warred too much, have flooded one another's countries too many times, for any race to be pure, to be perfectly true to type as it was when it came into history.

For instance, before some blue-veined, marble-skinned, yellow-haired, azure-eyed beauty flings this magazine across the room, let her read her history of England a bit. Caesar conquered England, you remember, over nineteen centuries ago. And the Romans stayed there for about four hundred years. And the Roman troops were as mixed a lot as ever could be gathered under the present English flag—yellow, brown, white and black. Every race known to the world at that time, and for the first four centuries, came into England by tens of thousands, lived, bred and died there. All except the red races of America. The same is true of all Continental Europe.

The black-haired Irish beauty owes her raven mane to the Spanish men who swam

and crawled ashore after Drake sunk the Armada, for the pure-blooded Irishman is red-haired. And the blonde Italian owes her golden tresses to some far-striding Goth who swung his Thoric hammer into the Roman provinces many centuries ago. No, there is not such a thing as a pure white man or woman on earth, any more than there is to be found a pure black, yellow or brown. The individual may not reveal a trace of other than racial purity, but suddenly some child or great-grandchild will breed back many score of forgotten and unknown generations to another race, and we have thus not infrequently the pure blonde negro or the white with the slant eyes of the Orient or the flattened nose of the black.

If we accept the meaning of "white man" as it is commonly understood today—and that is the only test of the meaning of any word or phrase—then let us look back, and not so very far, either, to see where he—this white man—came from. His father was from across the Baltic, from the Scandinavian peninsula, and his mother was a slave-widow of the race native to Central and Northern Europe.

In other words, the white man of today is practically a cross of the Teuton and the Celt. Neither race by itself is equal in world deeds to the cross. Thus neither Norway and Sweden on the one hand nor Ireland and the Basque people on the other, have ever done the things their cross-bred children have, who are the English, the French, the Germans, the Americans and the people of Little Russia. The Celt seems to have everything that the Teuton lacks, and the Teuton has what the Celt needs.

Crossing most races results in a mongrel with the worst characteristics of each, but not so when the Teuton breeds with the Celt. That cross seems to retain the best of both races, and to eliminate the weak characteristics of both to a large extent. The profoundness and thoroughness of the Teuton balances the shallowness and capriciousness of the Celt, while the quickness and brilliancy of the Celt lights up the logy slowness of the Teuton. Broadly speaking, we see this today when we compare the French and the German: one is mostly Celtic, the other mostly Teutonic. The men farther south in Italy and in Spain are Latin, different from both French and German. The English are about a balance between the French and the German.

What the American is no one knows. He varies from Sioux to Teuton, from the negro to New Yorker. The one distinctive type of American, the frontiersmen type, is now rapidly dying out, and the term "American" in a radical sense has no more distinct meaning than the term "European" or "South American."

And now enters a great change in the world's history. Ever since the Roman ruled civilization the ways of the world have been Latin. Our laws have been Latin, our religions have been Hebrewic passed through the Latin, our languages have been Latin; in fact, the world still obeys the sway of long dead Rome.

When the red-haired Gauls (Celts) and those yellow-haired gigantic Goths (Teutons) came pouring over the Alps down into the plains of Italy, there came the white man into history. And he came with a sledge hammer and he was wrapped in a bull hide. The early Latins found lions in Southern France and killed them out with hand weapons, but decayed by a fat peace they could not stem the Gaul and the Goth. These wild white warriors poured over the land and the seas of all civilization, from the Volga to the Nile, from Carthage to Moscow. They bred the white race, but just as Greek culture conquered cruder Rome, so did the now-cultured Romans conquer their Gothic invaders. The Teutons, centuries later, under William of Normandy, conquered England, and French, a tongue alien to both conqueror and subdued, was the language of England for two centuries. But today the blended conqueror and conquered speak the words of the rude native hogward, which is the language of Shakespeare and of Kipling.

So, though the Latin dropped the sword, he still held the pen, and has held it over the world for nearly twenty centuries. And right today we see in Europe the Teuton now enforcing his ways on the world; the Latin is on the wane. For the centuries to come the ways of Europe, in laws, religions, manners, languages, customs, all

promise to be more Teuton than Latin. But in America the Latin civilization will go on, just as did the Shakespearean language when in England itself the English tongue underwent various subtle changes which did not affect America. The Atlantic divides more than land, remember, just as does the Pacific.

And this—the change of Europe from Latin influence to Teuton, with the continuation of the Latin influence in the two Americas—this is the most profound world change of the present inter-racial war. The result must be too vast to make itself apparent for a long time to come, as the greater the change the slower does it reveal itself in the daily life of the family and the individual. This inter-racial war completes the downfall of Rome. What Caesar began the Kaiser ended. The crest of the Latin was Napoleon.

In the centuries to come is it to be a Teutonic Europe, and a Latin America? It looks like it. Asia has ways of its own that neither Europe nor America, nor the two together can change, or even divert. China has seen Greece rise and fall, has seen Rome rise and fall, has seen Europe change from Latin to Teutonic, has seen America come up out of the sea and overrun a new world. China has seen all this; one nation has lived that hoary life, and ancient China apparently is but an infant. It is the oak nation, and we other nations seem but the leaves that come and go as the seasons change.

It was impossible for that rude giant in the bull hide to overcome Rome. When he did overcome Rome it was impossible that he could ever overcome Roman civilization with a civilization of his own. But he did. and we are today seeing the last struggle of the Latin civilization against the Teutonic civilization. And in time Teutonic civilization will probably overrun the earth—all except Asia, remember. Then when the Latin is like unto the Egyptian, and when the Teutonic is as was the Roman fifteen centuries ago, then how about the yellow man and his ways, and his laws, and his customs, and his civilization?

Let us not forget Attila and Timour, Budda and Mohamet, Ivan and Nogi. Civilization has always flowed against the direction of invasion and with the direction of migration. In Europe for centuries the invasions have been from north to south, while civilization, starting from the Mediteerranean shores, has reached the Arctic Ocean. The reason is plain, the conquered people have usually been the more civilized. Rome over Greece, the Vandal, Goth and Gaul over Rome, are good examples.

'Tis not the man and the cannon that conquer; 'tis the woman and the plow. The captured woman turns from her dead mate, and through her tears smiles on his killer, and she keeps her blood potent in the land by mingling it with that of her alien conqueror in their children. So it has always been from Sabine to squaw, and always will be. And rightly so, for the woman belongs to the strongest man—he will get her anyhow. Men are exhorted and expected to die for their country, but not the woman. 'Tis of more importance that she keep her race alive as the wife of the winner than that she have a country.

Remembering the Goth in the Forum, and Bismarck in Paris, let us not forget the Mongolian. Before the Greek he was, and after the Goth he may be. He had a civilization before we came, and he may have a civilization after we are gone. The truest words ever penned by white hand may be those of Macaulay of the South Sea stranger musing over the half mythical ruins of London and gazing thoughtfully out over the wastes of Europe, that once were as fertile and as crowded as were the plains of Babylon in the valley of the Euphrates.

And who ever wins this tremendous war, be he Latin, Teuton or Slav, in his hour of triumph let him remember the Roman, the Greek and the Egyptian; let him not forget that his race is like unto a tree that has its uprising and its fall, and let him bow his plumed head before the inevitable Law of Time.

Angler's Fireside

Letter No. 67.—We Do Not Agree.

Editor Angling Department:—I notice that you advocate angling as a sport for the ladies. It strikes me that a woman must lower herself in the eyes of men when she dons rough clothes, even overalls, and enters the wilderness. I can not conceive of fishing as a ladylike pastime.—V. H. W., Boston.

Dear me; I am more than half tempted to leave V. H. W. to the tender mercies of our lady readers. I am impressed that the ladies met by me on stream and trail are

A question of overalls. Compts. W. G. B., Sheridan, Wyo.

well able to care for themselves, so I beg them to deal kindly with Miss (?) Boston. The day is far past when a woman, because she is a woman, need hesitate to indulge in any of the outdoor pleasures so long regarded as the peculiar possession of men. I have met scores and scores of woman anglers and have yet to meet the first without that ladylike "atmosphere" so dear to the hearts of women and withal so attractive to men. The women who fish and hunt I have found not only strong physically, but keen mentally. There is an iron which enters the blood only through outdoor vocations. Then shall that iron be denied our sisters? The harshest critic of women is woman. There is something about fly-fishing — the dainty tackle and deft touch — which appeals to the average woman, and there is no reason under the sun why a woman with a fly rod should be one inch less the lady than the woman with the tatting shuttle and powder puff. As for me, I will take the woman of the fly rod every time. "Rough clothes, even overalls"—Heaven help us! The angling editor has two women in his family, and the matter of outing clothes is quite an item. Bless you, sister, you can secure as natty and conventional a suit for the woods as you can for the drawing-room. Those ladies' suits cost something, too. The editor knows. As to "overalls," well, I can see no reason why they should not be worn in the woods by a woman as well as by a man. The whole thing is rather amusing, don't you think?—O. W. S.

Letter No. 68.—A Fourteen-Year-Old's Luck.

Through the courtesy of Mrs. J. W. Emmerton of Venice, Cal., we show herewith a picture of Master Alfred Emmerton of San Francisco, with his 18-pound halibut taken from the pier in the former town. There are two halibut in the picture—the one behind the big fellow weighed 3½ pounds. Both taken on the same morning. Something to be proud of, eh? We presume this fish to have been the common halibut. If so it was not large, as they are said to run up to 250 pounds. Dr. Goode had the record of ten or twelve captured off the New England coast, each weighing 300 to 400 pounds. Nilsson speaks of one taken off Sweden that weighed 720 pounds. A halibut of 350 pounds would be in the neighborhood of seven or eight feet long and nearly four

A boy's halibut catch.

feet wide. All of which does not detract any from the honor due Master Emmerton. That a boy of 14 could and did play and capture such a fish, speaks well for the coming American. We would like to know just what species of flounder this was.

Letter No. 69.—Serrated and Split Ferrules.

Editor Angling Department:—Will you please inform me through your valuable Angler's Fireside as to why a serrated or split ferrule is recommended in the stead of ordinary ferrules?—J. J., N. B., Can.

I am wondering if you regard serrated and split ferrules as one and the same. The serrated ferrule is made with notched or saw-tooth caps, so that the winding may be placed over them. It is obvious that such an edge offers a substantial gain in strength over the straight ferrule. Nine times out of ten our fly rods break just at the rim of the ferrule—breaks over the edge of the ferrule, as it were. You can easily understand why. The serrated ferrule bends, or gives with the rod. Then, too, the serrations, wrapped with silk, aids in holding the ferrule in place. Split ferrules have the caps split with a fine saw. Can be purchased ready made, but the rodster who is at all handy with metal work can make them for himself.—O. W. S.

Letter No. 70.—The German Silver Reel.

Editor Angling Department:—I notice that you advise German silver for reels and rod mountings. Aside from looks, is the material a whit better than nickel, or as good as aluminum?—H. G., Alma, Texas.

Looks alone are a sufficient recommend for German silver, but not the only reason why I urge it. German silver is durable. At the end of five years your reel, if it has received the care you should bestow upon it, will be as good as the day you purchased it. A nickeled reel soon wears off, showing the brass below, and presents a very untidy appearance. I am under the impression that my nickel reels show wear quicker than my German silver. Another point in favor of the more expensive material is that the increased cost will impel you to take better care of the winch. Cheap tackle is quite apt to receive cheap care. That is one of the chief reasons I have for urging best tackle it is possible to afford. To be able to will a reel to a son or fishing friend tickles a man's sentiment. As to aluminum, I would say that for light reels nothing could be better, and yet I have found it rather soft, and therefore easily marred. It is a truly splendid material for light fly-fishing, and when it is produced with an alloy added that shall increase its hardness, perhaps it will take the place of German silver, but I fear not in my affections.—O. W. S.

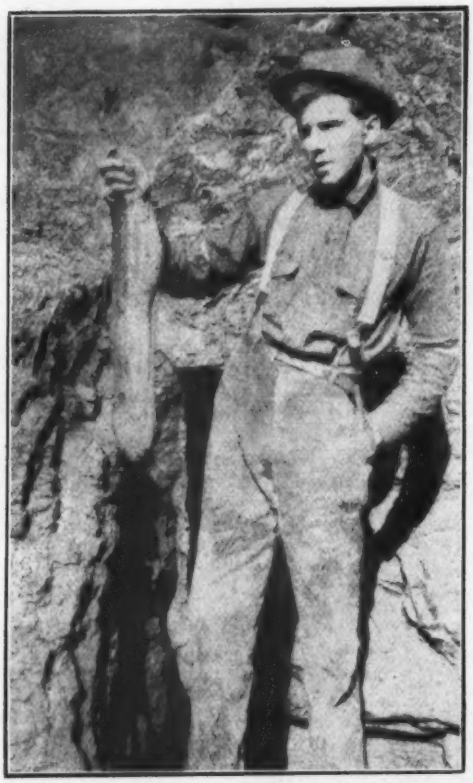
Letter No. 71.—When Is an Eel Not an Eel?

Editor Angling Department:—I enclose a photo of a fish taken from amid the rocks along the beach here where Old Ocean pokes its fingers inland. Is this an eel?—F. A. C., San Francisco.

As we were unable to answer, we referred the matter to the U. S. Bureau of Fisheries, receiving the following reply:

Angling Editor, Outdoor Life:—In reply to your letter of October 12, enclosing communication and photograph, recently forwarded to me by the Washington office of the Bureau of Fisheries: The fish in question is one of the Blennidae, commonly known as Blennies. They are quite far removed from the eels. It is very probably "Cebedichthys violaceus" Ayres, though the very meager description and the none-too-clear photograph do not tend to make for any great degree of certainty. The genus is represented but by the single species given. The following points of agreement with the information furnished, general appearance, apparent proportions and length, habits and the knob-like growth, as pictured in the marginal sketch on the photograph, are quoted from Jordan and Everman.

"Fishes of North and Middle America," pp 2426 and 27: "Genus Cebedichthys Ayres (like the Sapajou, a kind of monkey fish; in allusion to the peculiar monkey-like physiognomy as seen from the front).



It looks more like a bullhead than an eel.

Head short; crown with a conspicuous fleshy longitudal crest in the adult; . . . pectorals small, ventrals wanting . . . Pacific Ocean, herbivorous, similar in habits to the species of "Xiphidion" (Genus Xiphidion, habits herbivorous, feeding on algae. Active fishes inhabiting tide pools and crevices among the rocks in the North Pacific).

Species Cebedichthys violaceous Ayres: Head, 6½; depth, 6; . . . vent nearer mouth than base of caudal; . . . length, 30 inches. San Francisco to Point Conception; abundant; often brought into the markets.

Color notes included for verification: "Dull olive grayish, mottled with lighter, sometimes reddish tinged; vertical fins, all edged with reddish; cheeks with three darker stripes, edged with paler, downward and backwards from the eye close behind angle of mouth; another above it to root of pectoral; another running upward and backward from the eye, and meeting its fellow over the crest."

WALDO S. SCHMIDT, Naturalist.

Letter No. 72.—Some Tuna Information.

Editor Angling Department:—In order to settle an argument, will you please answer the following questions: Is the California tuna and yellowtail the same fish? Is the latter good to eat? What are the requisites for membership in the Catalina Tuna Club? —E. W. D.

We were requested not to publish this letter, but as the questions seemed of general interest, we have taken the liberty of publishing them with the answer of Mr. Holder, to whom we referred the matter. Mr. Holder's letter follows.—(O. W. S.):

Angling Editor Outdoor Life:—Replying to your favor of the 12th of October, beg to say that I am always glad to answer any questions of the kind your friend propounds, and to commence with the first one—"Is the California tuna and yellowtail the same fish?" No, it is not. There are three kinds of tuna in California—the blue tuna, or leaping tuna, the long-finned and the yellow-finned. The first is "Thunnus thynnus," the long-finned is "Thunnus alalonga" and the yellow-finned is "Thunnus maculata." The yellowtail is an entirely different genus and is "Seriola dorsalis," and is related to the amber fish of Florida and the little pilot fish that you find with big sharks. The yellowtail is a very fair market fish and in constant demand, and the long-finned tuna is the fish that is now canned in Southern California as "tuna" and has become as valuable in Southern California as the salmon is in Canada.

The membership in the Tuna Club is not dependent upon the weight of any fish, although what are called the blue button members are all men who have taken a 100-pound tuna according to the club rules; but the catching of such a fish does not necessarily make them a member of the club. They have to be elected as in any club, the idea being if a gentleman or an acceptable person catches such a fish he is eligible to membership if he can be elected. When I first founded the club we had a rule that nobody could get into the club unless he had taken a 100-pound tuna, and the man who caught the largest fish was the president. This was finally given up, and today we have two or three kinds of membership—one made up of those who have taken a 100-pound tuna and who are the voting members. Then we have associate members, who have no vote, but are admitted because they are good all-around anglers, and there are honorary members and life members. If an associate member of the club catches a 100-pound tuna with a rod he becomes an active member and acquires the right to vote. There are various buttons which are given to men who catch various fishes with different kinds of tackles. If this does not cover the points your friend wishes to know, kindly advise me.

CHAS. F. HOLDEN.

Trout Lore

Chapter 12.—The Trout of the Foam.

When I outlined this work I made no provision for a chapter under such a title as that above, but as I worked along chapter by chapter, and especially when writing the one just closed, I was impressed with the importance of the subject. Here, in as few words as possible, I wish to incorporate the accumulated knowledge of the last twenty years, as well as the result of much reading. Naturally, as no provision was made for this chapter in the genesis of the work, I shall repeat myself to some extent; yet there is need for the discussion, for I wish to cover the subject in such a way as will best help my readers and obviate answering many letters. The trout of the foam are as distinct and peculiar as are the trout of the dead-water. If the latter are heavier than the former it is their only advantage, as the former are aided by the weight of down- and possessed of good tackle is the angler who can sucrushing water. . Circumspect cessfully play and net a two-pound fish, or even a one-pounder, in a rapid.

THE TROUT OF THE FOAM

As a rule, I prefer to fish the dead-water and inaccessible pools, not only because of the large trout taken, but also because of the greater skill and patience required. Nevertheless, I often turn to the white water for pan fish and heart-palpitating excitement. There is a certain joy in fearing that your tackle will break — if it doesn't. I once located what I thought was a large speckled trout in a dead-water at the head of a long, tumultuous rapid. Several times I caught fleeting glimpses of his magnificent proportions when he rose to examine my offered flies, but always returned to the depths after a single glance. Day after day I visited the dead-water, but never did I even prick him with a hook. He was old and wise and shy. Then one evening, just as dusk was gathering, I slowly climbed the rapids, my mind fixed upon the pool at their head. Just where the water poured out of the pool there was a shoot of some twenty feet with a fall of four or five. Thinking that perhaps a trout might have taken up his abode just outside the down-rushing flood, as often is their habit, I sent my flies—two black hackles—out to the likely spot. Instantly a great trout—a rainbow—went into the air, curved over the flies

A TROUT OF THE FOAM THAT ESCAPED

"We sometimes found trout lying out in the shallow rapids."

"I often turn to the white water for pan-fish and heart-palpitating excitement."

and disappeared. Would he come again? I cast with little hope, but instantly the fish leaped, and I struck. Now, I am not going to tell of the battle; that is superfluous and impossible. Anyway, for a long twenty minutes I played the trout, in the rapids and out of them. At last, becoming impatient and under estimating the strength of the fish, I attempted to use the net. As the net neared his shining body there was a leap, a great flop and an empty net with an entangled fly. It was all my fault, but that did not salve my mind in the slightest. It was my big trout of the upper pool, not a speckled trout, as I had thought. Just why he came down out of the pool to bathe in the rushing water is a question. I hardly think a speckled trout of the same size would have made the transfer. Now, had I had that fish in the upper pool there is no question in my mind but that I would have succeeded in landing him, but the current was too faithful an ally. Some day I am going back to that same pool, and I hope I may be permitted to again try conclusions with that rainbow.

LOCATION OF FISH IN RAPIDS

Your experienced angler soon learns where to look for trout when they are lying out in the rapids; indeed, seems to feel the presence of a fish. I do not know that I made myself clear in the incident just narrated as to where that rainbow lay. In a stream with as great a volume of water as that possessed, trout would not lie in the main current, but just at the side and well towards the head of the shoot. To cast a fly directly in the current would be the height of folly, not only because the trout would not see it, but also because it would instantly be swept back to the angler. The fly should be cast into the little swirl or backset which marges the current, across the current, if the stream be not too large. The fly will hesitate long enough to give the fish its opportunity. Strike instantly. In a swift current you can not strike too quickly; indeed, the trout will often hook himself without effort on your part. Other spots beloved of the swift-water habitue are the little pools below and above rocks. Always where you see a gray old boulder showing its water-varnished head above the flood, you will find a miniature pool gouged out by the ceaseless action of the current; usually below, but sometimes above. Cast your flies a little above the exact spot you wish to fish, and retrieve them with a quartering motion over the water. Always fish rapids from below, not simply because trout lie with their heads upstream—there is something in that—but because it is much easier to hook fish when casting over them. I have experimented at length and have come to the conclusion that rapids always should be fished from below. When the water boils along the bank, if there be a cranny

or crevice amid the rock or a hole in the bank, look for a trout. Even a board or stick of drift wood caught on a rock is pretty sure to shelter a small fish. In fishing a rapid fish skillfully and carefully. Do not allow even a small and unprepossessing appearing bit of water to pass unnoticed. Always drop your flies in every opening. Again and again I have taken good fish where I least expected to do so. It is the patient, painstaking angler who fills his basket.

PLAYING THE WHITE-WATER FISH

It is impossible to offer much advice upon the playing of fish in the rapids, the angler being almost wholly at the mercy of the warring currents. If the rapid be fierce and possessed of a volume of water, there is but one way to play a heavy fish — coax him down through the rocks to the quiet pool below and there vanquish him. To attempt to net a heavy fish in rough rapids is suicidal. Witness my disaster as related at the first of this chapter. When the current adds its strength to that of the fish, there is but one thing for the rodster to do—the behest of the current. To attempt to swing a pound trout free of the water, even supposing you are using a rod fitted to the work, is very foolish; the chances are good to lose a leader or at least the fly. Take time and work the fish into some little pool or back-water, from which you can lift him with the net. Take ample time. Work slowly. Do not get excited. (There is no danger of that, of course!)

I presume we may not understand clearly just why trout love to lie in the rapids. In hot weather, when the streams are low, they undoubtedly seek such localities because the water is more thoroughly aerated.

WHY TROUT LIE IN THE RAPIDS

When we find them lying at the foot or side of foaming rapids it is probably because they find the location good for food hunting, the current bringing down with it insects, worms, bugs and all manner of fish delicacies. Upon the other hand, during bright, warm days in early spring we sometimes find trout lying out in the shallow rapids, hardly deep enough or possessed of water enough to be called rapids—rather ripples. What are they doing? "Sunning themselves," the older anglers tell us, and for want of a better reason we may as well let that pass. When the fish seek out the shallows to bask and dream, the angler may as well unjoint his rod, at least take himself to other portions of the brook. I have never had very good luck when the fish manifested a desire to contemplate the sky, and never have I taken a fish from the clear shallows with flies.

In closing this chapter, a few words upon the always interesting subject of tackle may not be out of place. As to the rod, all will depend upon what you fish for. If your ambition is to land as many fish as possible, then secure a cane pole, a la the small boy, but if you fish for sport and are willing to let the heavy fish go with the water, down to the open pool or liberty, then employ the regulation rod, the one that fits you and you can handle most skillfully. I ordinarily employ a rather heavy rod, of five or six ounces, because a light rod will often come to grief in the stress and strain of white water. Another reason for using a heavy rod is that given in the last chapter, ability to make long casts and increased control of hooked fish. However, truth compels me to confess that I have courted thrills by going up against white-water fish with a little dandy, fairy rod of three and a half ounces; never have I broken the rod, but I have secured thrills of several sorts and varying magnitude. My advice to the average angler is simply—don't. The line should be somewhat heavy, size E or F. Leader of ordinary length. Any standard pattern of flies, adapted to the stream and season, will prove satisfactory. They may run somewhat large in the larger streams, of a dark color if white water predominates. In the smaller creeks employ the smaller flies, even the midgets. More of which in the next chapter upon "Trout of the Little Brooks."

WHITE-WATER TACKLE

O. W. SMITH.

Casting Live Frogs

This is the day of artificial lures. To prove the assertion we have only to glance into the show cases at the tackle store, where lures of all shapes, sizes and colors are shown. Lures, unlike any reptile, fish, bird or animal that ever crawled, swam, flew or walked. I once asked a manufacturer what a particular monstrosity created by his company was supposed to represent. "Well," he replied, "I can not say that it represents any known creature, but it will catch bass. Suppose you take this sample home with you and try it out at your first opportunity." Of course I did, and the thing caught fish, all right. Why, the black bass seemed to hate it, and I thought struck at it in anger. Neither can I blame them much. Certainly such a monstrosity had no business in the water. Do not turn down a lure simply because it does not look like any

known fish food; it may be just the "counterfeit presentment" needed to turn a barren day into a prolific one. Yes, I am a user and an advocate of artificial lures, so for that very reason I think you should give me a hearing when I set out to talk upon bait-fishing—live bait-fishing.

Time was when the only orthodox bait for black bass was live frogs or minnows, and that they were "good medicine" many an old-timer is ready to testify. In this paper I am going to discuss casting live frogs, not because I consider them superior

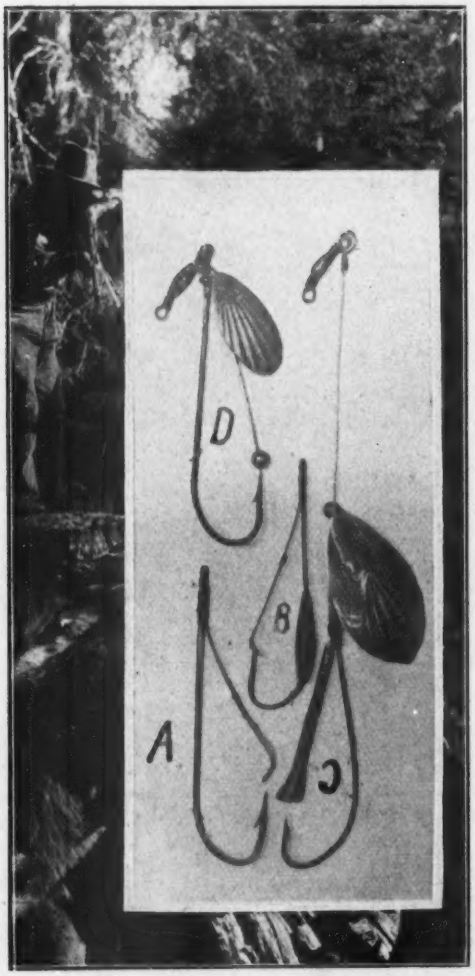


Fig. 1.

to the artificial lures, but because there are days and waters when and where the gymnastic amphibian is the key to success. As this is to be a discussion of frog-casting, the question of deep fishing will not be touched here. Later, perhaps, we will take up the other branch of the sport.

Not every water is adapted to the sport. You would not think of attempting to fish for trout with grasshoppers where grasshoppers never hopped, neither should you go out to a clear lake, devoid of snags and aquatic vegetation, where the voice of a frog is never heard, and cast. A lake surrounded with low, marshy land, such as is usually found at inlet and outlet, or one with broad-reaching beds of water lilies, is sure to support frogs. If frogs and bass are found in the same water all the angler has to do is to learn how and where to cast, and success is assured. The "how" includes tackle, and the "where," fish knowledge. Both are necessary. The best of tackle alone does not fill a creel, neither will fish knowledge unsupported work a miracle.

In the matter of tackle, the froggist's paraphernalia, save for what we may call terminal tackle, differs not at all from that employed by the user of "plugs." The same style of casting rod, your favorite make and material; the same style of reel you use when casting with lures, level-winder, free-spool, self-thumber, or what not; the line, the best bait-casting line you can afford. But when we get to the end of the line—the hook—we must pause. Before we select a hook let us levy upon our fish knowledge. When feeding, bass lie in the weeds or in the lily pads, ready to rush out upon unsuspicious frogs and minnows. Now, to cast an ordinary baited hook into a tangle of weeds and plant roots is to court a vegetable snag unless a fish seizes the frog before the fisherman begins to retrieve his bait. If we were certain to hook a fish at every cast we would not need to worry about the hook, but alas! that may not be. First, then, for frog-casting, the hook must be as near "weedless" as possible; secondly, a frog will not stand much casting, as his flesh is soft and the hook soon pulls out, therefore the hook should have, in addition to weed guards, some arrangement to hold and support the frog.

In Fig. 1 we show four forms of weedless hooks. A is a plain weedless hook, the point being protected with a bifurcated wire, with sufficient spring to ward off weeds, but easily pressed down by striking fish. Of course the frog or minnow is hooked through the lips. B shows the same style of hook with a weight added to the shank so that the bait must travel in an upright position, a step in the right direction. C discloses another style of weed guard, a coil spring, which I have found very effective. You will note that this particular hook has a spoon attached, though they are made without. D shows still another style of weed guard—a simple steel wire capped with a boll that effectively protects the point of the hook. This hook is

also shown with a spoon here, though like the last, can be secured without. Quite a little has been said regarding the legitimacy of employing both bait and spoon, the contention being that to do so is to violate the high ethics of sportsmanship. It would seem that if one is going to troll, let him troll, and if he is going to cast, let him cast. However, I am going to leave the much-mooted question to the individual angler; it is a matter I can not decide.

In Fig. 2 we show two combination hooks, one of which deserves to be called a frog harness. A is simply a double weedless, the upper hook with weight attached so that the frog travels in an upright manner. The advantage of this hook is found in the support the frog gets from the rear, the near hook passing up between his legs, and the difficulty a fish will have in attempting to "strike short." Very good for pike, but questionable as regards bass, for the latter fish strikes from the side and turns frog before swallowing. Almost any two weedless hooks can be arranged in this combination. B shows a good frog harness, though there are several other forms upon the market. The upper weedless hook is passed through the lips of the frog, the two rear hooks up between his legs, the string wraps about his body and is fastened in the grooves shown in the weight. The frog's body itself makes the rear hooks practically "weedless" and the forward hook has a regulation guard. It is a good outfit for the purpose. The forward hook is also made with a tubular spoon, and those fishermen who can use both bait and lure will find it a fish-getter.

I experimented quite at length regarding the attractivity of spoons with and without the frog, and with frogs with and without the spoon, with the result that when fish will not take either one I find that they will take both in combination. For instance, I was trolling for pike in a northern lake, and without result. Then my companion, who was acquainted with the water, advised the addition of a frog. One was caught and added to the treble of the spoon, and in less than five minutes I had hooked an eight-pound pike. We trolled with frogs alone and the fish paid no attention to our bait, but when we used the two in combination we always got a strike in short order. Explain it if you can. Of course that was not casting, and is inserted here as a sidelight upon the question under discussion.

It is hardly needful to say anything regarding the modus operandi of casting, because it differs in no essential from that employed with lures. However, the angler should be admonished to cast gently and watch his back cast. A snap is to be avoided of all things, for it is an easy matter to snap off a frog, even when fastened to the hook with a harness. Cast with care into

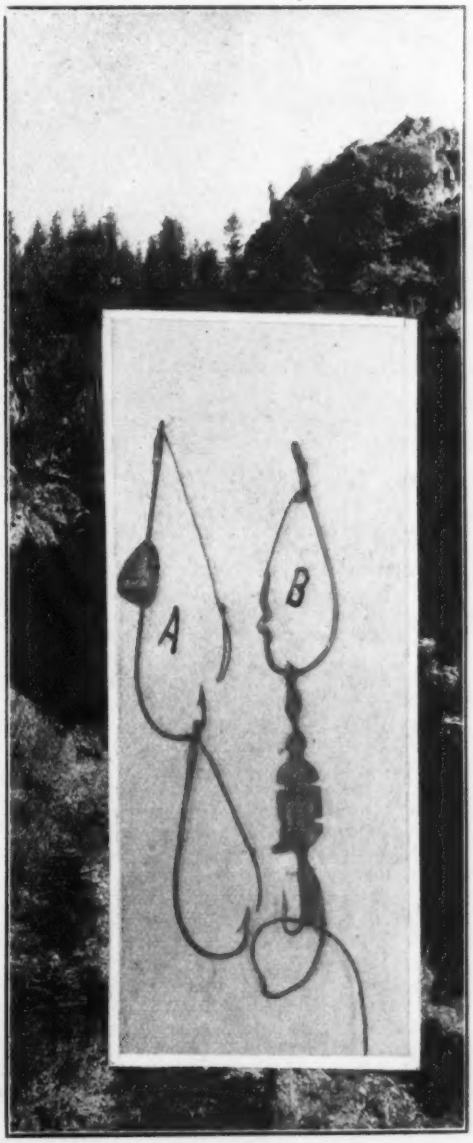


Fig. 2.

the little open places amid the weeds. Remember that a frog never strikes the water sidewise or backside down. Cast a la nature. In fact, when fish are shy, better results will always be secured if we go about our work with circumspection and care. In casting amid weeds, and as pointed out before, there is little use in employing frogs upon the surface elsewhere, one should cast from a boat towards shore. Always cast towards weeds, never over them. Early morning and from 5 to dark is about

the best time for such fishing, simply because bass are then "on their feed." Little use angling for any fish when not feeding. Do not go about frog-casting in a slap-bang style; cultivate a ladylike nicety.

There are certain frogs that seem more attractive to bass than others. Bull frogs are almost useless, and the small green meadow frogs are preferred. Do not select a large frog under the impression that "large bait means large fish." Large bait means no fish instead. The most convenient way of transporting frogs is in a cloth bag; a small salt or sugar sack will do. More than once I have cut out my pants pocket for the purpose. You can carry a dozen frogs in an average-sized salt sack without danger. A string should be attached to the top for a binder, a good large cord, so that when your hand trembles with eagerness you will have no difficulty in handling it. The mouth of the sack can be opened and a single frog removed without difficulty, which is not the case with a bucket, as many of us can testify. To have three or four frogs escape at once is vexatious, as perhaps some readers of this magazine can testify. I remember having three jump from my boat once upon a time, and I sat helpless while a hungry pike made a dinner upon them. O. W. SMITH.

(Note.—This article will be followed by one upon weedless lures.)

The Influence of Sound upon Fishes

I have just been re-reading Bureau of Fisheries Document No. 752, which treats of "Effects of Explosive Sounds, Such as Those Produced by Motor Boats and Guns, Upon Fishes." I would advise every angler to read the pamphlet. The conclusions of the author, Prof. G. H. Parker, S.D., are as follows: "The sounds produced by motor boats are extremely faint under water and have little influence on the movements and feeding of fishes. Such influence as they do have is temporary and very much restricted in local extent. Single explosive sounds, like the report of a gun, may startle fish and cause them to cease feeding, but these responses are also temporary and local. Although most sounds are repellent to fish, some may serve as lures to particular species."

The above "conclusions" may be something of a surprise to the average angler, though they are in line with the results of my own experiments. Certainly the fish with which our author experimented were not the so-called "game fish," but such species as killifish, kingfish and scoup, all known to be sensitive to sounds. The result of his experiments with impounded mackerel were practically the same. An observer, placed where he could watch every move of the school, reported that they seemed wholly undisturbed by the passage of a motor boat, either with the exhaust pipe above or below the water. Yet the same fish darted away when the observer stood up in the boat. A shadow passing over the surface of the water seemed more disturbing than actual sounds.

I recently experimented with three varieties of fish—trout, the eastern brook, black bass, large-mouth and common yellow perch.

The gregarious habits of perch are well known. Induce one to bite, and it is "dollars to doughnuts" that more will follow. I was fishing a little inland lake, and one morning I sat in my boat watching the actions of a school of medium-sized perch which crowded about my worm-baited hook like hungry pigs at a trough of swill. They pushed and jostled one another, each seeking to have first chance at the tid bit. I shouted, sang and whistled, yet they manifested not the least concern. Then I struck the bottom of the boat sharply with my heal, but not moving head or shoulders. All displayed some concern and the larger fish sank slowly to the bottom, though feeding continued. Always when I struck the boat a wave of excitement passed through the school and some fish darted away, but promptly returned. There was nervousness and excitement manifested, but not real fright. Upon the other hand, when I moved my body—it was a bright day and the water very clear—the fish darted away instantly and were loath to return, neither could I be sure that it was the same group of fishes that again gathered about my hook. This experiment was repeated again and again, morning after morning, and always with the same result. Necessarily I was compelled to conclude that conversation and sound above the water had no effect upon perch, and concussion directly in contact with the water was little disturbing. While upon the other hand, movement, however slight, was noticed and feared.

My experiments with black bass have naturally been more restricted, as anyone at all acquainted with the habits of the fish will realize. When the male bass is guarding the nest or protecting the fry he is not very sensitive to motion or sound, but at all other times a hint of movement is all that is required to send him dashing away in a panic of fright. In a little lake much frequented by me the bass feed at the mouth of a creek along towards sunset and seem

not at all disturbed by conversation and loud shouts, though the report of a shotgun close to the water's edge causes them to remain quiescent for five or ten minutes. I am certain that if the gun were fired in the air, without any connection with the earth, the bass would pay no attention. I am impressed that a sound must be of sufficient force to cause the water to vibrate in order to alarm fish. It is not the noise, but the vibrations communicated to the water that produces alarm. Certainly a gun fired into the water would frighten the fish, but we can not say those fish were afraid of the sound.

I am acquainted with a small, rapid river in which the bass have formed the habit of feeding upon insects, because the latter are numerous in season and the fish's natural food, crustacea, is not overly plentiful. One evening along toward the latter part of June the bass were rising freely close in shore and wherever outreaching snags offered safe lurking places, so I threw aside my fly rod, determined to carry on my experiments at the expense of my creel. Carefully making my way down to the very edge of the water, I sat down and waited. Bass were constantly rising almost at my feet, and though I shouted like an old-time Methodist exhorter, they paid no attention to my noise. A stone cast upon the water seemed actually to attract them, though several cast in rapid succession drove them from the surface for fully five minutes. When I moved along the shore, walking in plain sight of the water, a flitting May fly was sufficient cause to bring two or three bass to the surface. All in all, the river fish seemed less shy than those of the lake. Upon the other hand, there have been times when a single fleeting shadow has alarmed river fish, and in order to cast from the shore successfully it was necessary to move with extreme caution and cast from behind a stump or stand in the shade of a tree.

I have found trout more sensitive to sight than sound, a careless footfall or the cracking of a dead brush being sufficient cause to send every member of a school into the darkest recesses of a pool. Conversation can be carried on with impunity along any trout stream ever fished by me, popular belief to the contrary notwithstanding. It is natural to whisper if you wish to communicate with a companion, and personally I had rather angle in absolute silence. However, I am firmly convinced that the trout fisherman should regard his feet more than his lips. Fish "hear"—feel—sounds through the skin very much as we feel the vibrations of a piano when our hands are in contact with it, while certain fishes sense low vibrations by means of the lateral-line organs. It follows that the sound must cause vibration of the water if it is to reach the fish. I have not mentioned the so-called "internal ears," for science is not wholly agreed as to their functions.

Again and again I have demonstrated to my own satisfaction that trout are more afraid of a passing shadow, such as that cast by a passing bird or a carelessly handled rod, than they are of conversation and the like. It is a time-worn belief that trout will not rise during a thunderstorm, yet I have again and again demonstrated that they will feed in the midst of the most terrific electrical displays. On the last day of the season just closed (August 30, 1914) I, in company with a friend, was fly-fishing on a little tumultuous and rocky stream, such a stream as is supposed to be influenced by thunder because of many boulders. About half past twelve there broke such a thunderstorm as it has seldom been my fortune to be exposed to. So dark did it become that I was unable to see my flies, save when the vivid lightning illumined the surface of the water. Yet trout rose with avidity until the heavy rain roiled the water to such an extent that it was impossible for the fish to discover the flies. We found a few worms and caught twenty trout, in spite of the storm.

I might continue, multiplying illustrations from my own experiences and experiments, but time and space are both exhausted. My conclusions are as follows: Sounds not directly communicated to the water have little influence upon fish. A fish is more afraid of shadows than of sounds. A breaking twig or heedless footfall upon the bank of a trout stream is to be avoided.

O. W. SMITH.

AN ACT

TO PROTECT BEARS, AND FORBIDDING THE USE OF STEEL TRAPS, ETC., IN THEIR PURSUIT.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF .....

No person shall at any time of the year take any kind of bear with a steel trap, or set, for the purpose of trapping any animal whatsoever, any steel trap larger than what is generally known and designated as a No. 4 Newhouse, and no person shall at any time of the year set a deadfall, snare or pen for the purpose of trapping or capturing any kind or species of bears whatsoever. Anyone found in possession of such a trap, deadfall, snare or pen outside the corporate limits of any city or town of this state at any time of year, or who shall have set or assisted in the setting of such a trap, deadfall, snare or pen for the purpose of trapping or capturing bears, shall be guilty of a misdemeanor and fined in accordance with the provisions of this act.

No person shall at any time of the year, except between September 1 and July 1 (which shall be considered the open season on these animals), take, pursue, wound or kill any kind of bear in any manner whatsoever, with these exceptions: That for the purpose of propagating and holding in any public park or zoological enclosure, or for the purpose of killing for the use of any public museum, the State Game Commissioner may, at his discretion, issue permits for the taking of such animals at any time of the year. Or where it has been shown that a bear has committed depredations sufficient to warrant his being killed, the State Game Commissioner may make provision for his death.

No person shall take, during the open season on bears, more than two of the kind commonly known as black, brown or cinnamon bears, of either sex, nor more than one grizzly bear of either sex. The possession during the closed season of any part of such animal shall be prima facie evidence of guilt.

Any person who violates any of the provisions of this act shall be guilty of a misdemeanor and shall be liable to a fine of not more than $200 nor less than $50 for each offense, or to imprisonment for not more than sixty days, or both, at the discretion of the court.

This bill has been prepared after the exchange of much correspondence with America's leading sportsmen and naturalists. In its present text it is not meant to entirely conform to the needs of all states, but is intended to include the most vital general provisions necessary for bear protection in the United States, with the idea of changing the seasons, bag, etc., to conform to the requirements of any of the several states. We consider the bill an ideal one for the states of Colorado or Wyoming, for example. Volunteers are needed who are willing to assume the work of introducing this bill into the assemblies of the states which meet this winter. Game associations and prominent sportsmen can do a great work in this campaign. Write J. A. McGuire, editor Outdoor Life, Denver, Colo., if further particulars than those set forth in the following pages are required.

Let Us Protect Our Bears

Up to within a comparatively few years ago none of our wild game received any legal protection. Finally as our country settled up the necessity for protecting the creatures of the wild became apparent, and bills were passed by our more progressive states, naming closed seasons and limiting the number to be taken in the open season. As time went on and the game became scarcer these open seasons were restricted, the bag limits were reduced, females and young were placed on the prohibited list and other reforms were put into operation by our several states to insure the preservation of our wild animal life. Later it became necessary in some states to prohibit the killing of any animals of certain species at any time of year, so depleted had these species become.

Through all this evolution of our game laws there has stood one picturesque American animal without protection, trying to hold out against great odds—an animal for whom there has been no mercy, and against whom it seems Creation itself has continually held a grudge. There are only two states in the Union that have any protective measure on their books in favor of bears. They are Pennsylvania and Louisiana. In Pennsylvania they may be taken only from October 1st to December 31st inclusive, and in Louisiana from November 1st to January 31st inclusive. Brown bears may be taken in Alaska from October 31st to July 1st inclusive.

The misconception in the minds of the average person about the depredations of bears is largely responsible for this condition. Many big game hunters do not fully realize what a harmless creature the average bear is. Even the "ferocious" grizzly will sneak off and leave the country at the approach of man. Lie out over night on a trail frequented by grizzlies, and you will be given a wide berth when they come along. You are as safe from them while sleeping in the open as if you were in jail. The only danger in hunting grizzlies is in their being discovered while in an aggressive mood at very close quarters or wounding one at very close range. Even then there isn't one grizzly in a dozen that will charge.

As to their depredations on stock, such charges have been greatly exaggerated. While some old grizzlies have been known to kill stock in very exceptional cases, yet it is a fact that they do not habitually prey on stock nor would all the damage done by all the bears on the North American continent to stock amount to as much as the damage done every year to hay and grain by the deer, elk, moose and antelope of our country. It is very often the case that the depredations of a mountain lion are laid at the door of a bear. Bears very rarely kill game, such as deer, elk, etc.—(we have never known of an authenticated instance of such killing), whereas we have witnessed one case of a yearling deer being killed by even the little bob-cat, and know of many others. While hunting bears in Wyoming on one occasion we came across a doe (pregnant with fawns) that had been killed by a lion a few hours before time of finding. We happened along that way a few days later and found that the entire carcass had been devoured by a bear. If we had not seen the work of the lion, and were unfamiliar with the habits of bears, we might have believed that the deer had been killed by the bear.

Bears probably would kill game at certain times of year, at least as readily as they would stock, if they were fast enough, but ordinarily a deer or an elk has no trouble in getting away from a bear. The members of the deer family have at least two very superior senses that aid them in getting away from Bruin—their eyes and their legs.

In consideration of the fact that one of our grandest American game animals will soon be exterminated unless something is done to protect him; and in consideration also of our deepest admiration for this animal, the disappearance of which from our continent would remove one of the sublimest figures from our woods and mountains, we have prepared a bill to submit to the legislatures of some of the states this winter asking relief from all kinds of traps, and also asking for a closed season on them for a certain number of months (during which time the fur of these animals is no good anyway), and a limit on the number that may be killed in a season. We hope our sportsman friends will rally to our support in this movement. We want the sportsman clubs to take it up, pass resolutions in favor of it, publish these resolutions, and in every way possible work up a campaign of education among the people on the good qualities of the bear family. We want the sporting goods dealers with us on this proposition, and we ask them to talk bear to every man who enters their store. We need to work up a strong campaign of education to offset the prevailing opinion regarding these animals.

It is our hope to be able, not only to influence proper closed seasons and bag limits on bears, but to get every state in the Union to forbid the use of that horrible

instrument of torture, the steel trap. If there has ever been an iota of an excuse for trapping by steel trap, deadfall, snare or pen, we have never discovered it.

Let our sportsman friends of the outlying states frame up measures containing the essentials of this bill, send us copies for our approval, and we will assist them in having these bills passed in their respective states. We hope to receive many assurances from our sportsmen friends that this will be done.

Bear trapping is no sport. It is cruel torture to hold any animal in a trap for periods ranging from an hour to a week—frequently longer and often subjecting them to a slow death from starvation. We have known of many instances where bears were caught in a trap and allowed to die. When the trapper goes to the scene, what does he find? Every vestige of herbage eaten, the bark and part of the wood from the trees scraped off to sustain life, and the emaciated carcass of the animal lying where it fell.

There are laws on the statute books of some of our states even offering a bounty on bears—a libel on the good sense of the lawmakers and sportsmen of those states.

We could fill these pages with many other arguments, some taken from personal experiences in the hills, to show why the bears of North America should be protected; but we have received so many communications (in reply to a letter sent out on this subject recently) from eminent sportsmen, hunters and woodsmen of America, voicing eloquent appeals for the sake of the bear, that we shall be content to let our case rest on their pleas. Extracts from some of the most important of these letters we reproduce herewith:

When we first decided on the launching of such a measure last September we wrote to Dr. W. T. Hornaday, of the New York Zoological Society, and the giant pillar of game protection in this country, enclosing to him a rough draft of the bill. This first bill allowed a more liberal bag on each kind of bears than does the one presented herewith. Dr. Hornaday, with his characteristic enthusiasm wired us as follows (which again demonstrates the truth of the old axiom, "If you want something done quick and well, go to the busy man"):

"I think your proposed bag limit on bears entirely too generous and very bad for the bears. Make your proposition two black bears, one grizzly and one Alaskan brown bear per season and I will support you strongly. W. T. HORNADAY."

Dear Mr. McGuire:—I cannot too strongly commend any effort on your part to protect the bears. The grizzly bear is rapidly becoming extinct in the United States and parts of Southern British Columbia. Farther to the north it is sufficiently abundant and holds its own. Very rarely in the United States the grizzly becomes a cattle-killer.

In Alaska and Yukon and the North the bears do not kill big game, nor molest people (with rare exceptions, and then owing to some unusual circumstance), nor do they touch stock. This is a fact, no matter what you hear to the contrary. Bear stories are common, but when you chase them down to facts you find most of them unreliable and the others misunderstood.

I do not favor a uniform law about bears in all the states—that is, if the states are to permit the shooting of grizzlies. I do strongly favor a close season on the grizzly in all states for a term of years, except when it is proved that a bear becomes a cattle-killer, and then this special bear should be killed. One of the greatest points in protecting bears is to prohibit the sale of hides, heads and claws. CHAS. SHELDON.
Author of "Wilderness of the Upper Yukon," etc.
Vermont.

Editor Outdoor Life:—Any law that will protect bears for sporting purposes, and which will make it illegal to use steel traps, will please me.

During the most successful moose hunt in Nova Scotia from which I have just returned, strange noises were heard one day, coming apparently from a swamp some two miles away from camp. We took these for the lowing and whining of a cow moose, but the third day I determined to investigate, and made my way carefully to the immediate vicinity of the "cow," where I could hear every breath and wheeze that were taken while emitting the most curious and horrible mixture of groans, whines and calls that I ever listened to. On creeping within forty yards of the beast, I discovered that it was a bear with its paw, a front one, fast in a large trap, the clog-pole of which was caught between two trees. The true character of the cries that I had heard for two days and longer at once appeared. What I had laughed at as the crazy mouthings of an amorous cow were but the agonized groans of a bear dying in torture. I at once shot the poor beast, not even waiting for a camera-shot, which I would much like to have had. You should have seen the mute but eloquent signs of the awful struggle for escape from suffering that the martyred animal left, the digging up of the earth, the ripping off of bark and chewing up of small shrubs and even big bites in larger trees. I am no weakling, I believe, and I don't object to killing things if I need to, nor have I any sentimental ideas about the "sanctity of life," but I must confess that I had some trouble in keeping back the tears, partly perhaps of anger, as I viewed this poor animal, killed in a barbarous way for the sake of a few dollars. Shame on the civilization. Shame on the churchgoers and the preachers who let a state of things like this go on with their full knowledge. The use of steel traps should be prohibited by every state in the Union and every province of Canada.
EDWARD BRECK,
Author of "Our Wilderness Pets," Etc.

My Dear Mr. McGuire:—Your letter of September 22, with draft of proposed law for the protection of bears, has been forwarded to me here from Washington. I quite agree with the general features of the proposed act, but would recommend the insertion of an additional clause permitting stockmen to kill bears found destroying their cattle, sheep, or hogs, this being simple justice and in accord with the usual exemption in the case of other game animals. I cannot reply in detail to your question about damage done to live stock by

bears for the reason that such a reply would involve the writing of a volume. At the present time, however, grizzlies are so rare in most parts of the United States that the damage done by them in this line is practically negligible.

You ask my opinion as to the numbers permitted to be killed during the open season. This should vary with the varying conditions in the different states. In certain states one black and one grizzly would be enough. In others, where bears are more plentiful, there would be no harm in killing more. Recommendations on this head might fittingly be made by the Game Commissioners of the several states.

C. HART MERRIAM,

For many years Chief Biological Survey, United States Department of Agriculture, and now engaged in writing what will be the most exhaustive treatise on the bears ever published in America.

Calif.

My Dear McGuire:—I thank you for your work in bringing forth a bill to protect the bears and to forbid the use of the barbarous steel trap. My inclination would be to go still further than your tentative bill plans. First of all, within the bounds of the United States I would have four or five years for a closed season on all bears. If such legislation is not now possible, then I would limit the open season to not exceed two weeks and the number of bears to not more than two. I would also forbid the use of dogs in the hunting of bears.

From long and special investigations I feel safe to say that bears do but very little damage to big game or live stock. I know that there are some rare exceptions to this statement. In the realm of economic biology I would rate them high and the peculiar realm which bears occupy in the wonderland of the wilds and our relation to the wilderness, has value greater than can be estimated in dollars and cents. Bears are verging on extermination, and I would like to see them multiply. As soon as the time should come that they are too numerous or if any one should be obnoxious at any time, these problems can be easily managed. Any way, I feel that it is time to quit hunting with dogs; that the use of the steel trap is absolutely inexcusable, and that if there be an open season on bear, that the number be not more than two and the open season not to exceed two weeks.

I thank you and congratulate you for this good start in the putting of a check on the best of our vanishing wild life, and I hope to be able to help you push this legislation for bears. ENOS A. MILLS.

Author of "Wild Life in the Rockies." Etc.

Colo.

Editor Outdoor Life:—The spirit of your proposed bill is commendable. The existence of wild life is an appeal to every dweller in the land. The possibility of even a glimpse of a deer, a bear, or other denizen of the forest quickens the pulse, is a stimulus to travel, and gives zest to every journey through the wilds. With the advance of civilization the extermination of all the game, unless protected, is only a question of years. Even with legitimate hunting the game must disappear, except in or near the asylums. Wild game, like scenery, is a valuable asset. The game being protected, a hunter, not for profit, is, like the tourist, worth good money to any county and state. Witness the increasing moose in Maine and in New Brunswick. The railroads know their value. I favor the passage of a bill in every state protecting bears for the above reasons.

If occasionally bruin takes toll, the loss is trivial, compared to the benefits.

Make a limit, say, of two bears of any kind in the states, and two black and two brown in Alaska. F. A. WILLIAMS,

Charter member Chicago Campfire Club; able jurist and sportsman.

My Dear Mr. McGuire:—I am in receipt of your letter with enclosed draft of a bill to protect bears. Your bill is a good thing; push it along.

I would not only stop the trapping of bears, but would stop the use of set guns, deadfalls and snares, and put a closed season on them according to the locality.

I have heard of no damage done to stock by bears in Montana since the early days. In all of my experience I have never found where a bear had killed game, such as deer, sheep, goat or elk. They will readily feed on any kind of meat at certain times of the year. I have known of two instances where they killed one another and ate the flesh; have heard of instances here in Oregon where bear did some damage in orchards; no more so than a cow or hog would do, however. His natural food in the states is wild berries. He is never looking for trouble and if given half a chance he will get out of your way, and the man that will go into the haunts of the wild bear and outwit him and kill him by still hunting is entitled to be called a sportsman and a hunter. W. A. HILLIS,

A sportsman of wide experience who has killed hundreds of bears.

Oregon.

Editor Outdoor Life:—I do not feel qualified to pass intelligently on some of the points covered in your proposed law; but do believe that there should be an open and closed season, as well as a limit on bears. Three months, I believe a sufficient season on bears, but believe it should be a month or six weeks later in a majority of states on account of the condition of the fur and also the eating condition of the bear; for just as soon as he is protected and considered in the way of game rather than "sport," as is now the case, they should be killed and used when both fur and meat are best. Steel traps should be prohibited, unless by special permit from the state game warden in sections where they were a menace to sheep or cattle raising, which I believe would be seldom.

D. W. KING,

Champion rifle shot and big game hunter of great experience.

Colo.

Editor Outdoor Life:—I would assess a fine of not more than $500 nor less than $100 against any one violating the provisions of your proposed bear bill, and in addition impose a jail sentence of sixty days if the case warranted. I would limit the number of bears in the states to one black and one grizzly, and in Alaska to two. The grizzly bear is the noblest game animal in America. I am heartily in favor of your bill, it is a good move in the right direction, and if it doesn't pass as a law very soon Mr. Bruin will become extinct.

J. WYLIE ANDERSON, M. D.,

A sportsman of note and slayer of largest bear ever killed (as far as known).

Editor Outdoor Life:—I read in the last issue of Outdoor Life that you are drawing up a bill to protect bears, that will be put before the legislatures of the several states. I have hunted bears quite extensively and agree thoroughly with what A. C. Rowell says in his articles in Outdoor Life on the habits of bears. His experiences have also been mine, in a smaller degree. The bag

limit could be either two or three in a season, which should be in this locality (Siskiyou County, Calif.), from October 15 to May 15 or June 1. I believe it should be made a punishable offense to be found in possession of a trap larger than a No. 4. Hoping to see the day when the wasteful and useless killing of our largest game animal will be a thing of the past and assuring you that I will do all in my power to attain the end, I beg to remain, yours truly,

JAMES MAZZINI,
Calif. Prominent sportsman.

My Dear Mr. McGuire:—I have seen many fine bears left in the traps until they died and the pelts spoiled. It certainly is time that sportsmen and guides rose up and demanded a square deal for bruin. I know one instance in particular: I had been still-hunting bears in Wyoming with Ned Frost; we had camped on the trail of an old grizzly for several weeks, but while he came to the bait about every third night, he never showed up while it was light enough to shoot, so we had to come away without him. Three weeks later I received a letter from Ned telling me that same fellow had put a trap at our bait, caught our bear, and neglected to go to the trap for some ten days, and when he did go, found the hide ruined. I tell you, it made me sick to think about it, and I have strenuously preached against trapping bears ever since.

MALCOLM S. MACKAY,
N. J. Sportsman and ranchman.

Editor Outdoor Life:—Bears in general are not at all dangerous or destructive enough in any manner to warrant trapping. It is already apparent to most sportsmen that bears, and grizzlies especially, have been so ruthlessly pursued that they are almost extinct in some parts of the West, and are still more scarce in the East. It is an indubitable fact that within the next twenty-five years at the present rate of slaughter they will not be found in over ten per cent of their former range in the United States. In every state in the Union there can be found examples of what ruthless slaughter has done to the game and we should profit by the lessons.

To any one desiring authentic information as to the status of wild game in the United States as well as the rest of the world I should recommend Dr. W. T. Hornaday's "Our Vanishing Wild Life," which ought to be read by every sportsman in the world. The sportsmen and the people of the whole world owe Dr. Hornaday undying gratitude for this surpassing work.

As to the bills on bear protection you are drawing up would say that your initiative is to be admired and should have the support of every true citizen and sportsmon.

Ills. JAMES BANKS KENDALL.

Editor Outdoor Life:—The bill that you have framed for the protection of bears is a good one and I will surely work with you on it, for it is just what the guides should have in this state. I think the time for a closed season should be from the first of July till the first of September, but we got a hide this year that was perfect, the 10th of July. The smallest trap used for bear is No. 4 as a rule, but I have caught them in No. 3; although this size is not used for that purpose. The No. 3 is used in catching lions and it is plenty large enough for them.

JOE JONES,
Wyo. Guide.

Editor Outdoor Life:—I am in favor of no traps and a limited bag on bears. As we cannot get into the best of our bear country here until late June, I should like to see May and June open. September being our open season for big game, should also be open for bears, as many sportsmen would get chances while after other game that they would never get otherwise; and, of course, as they are in good fur from then till denning-up time, usually about Nov. 1, in this country, the season should remain open. I think the season for killing bears could be easily arranged; simply close July and August. This is the time sheepherders kill so many while in the high mountains with their herds. Yet I have never heard a sheepowner complain of bears killing sheep in this countrv, nor do I believe they do much damage to wild game; at least I have never seen any proof of it in all my experiences in the hills. Years ago, when there were lots of old grizzlies in the lower country, they did kill cattle a great deal, but we will never see the day again when they will ever bother stock interests. I have not heard of a single instance where a bear has killed cattle or horses in this country in the past fifteen years, and only one or two cases of their molesting sheep.

N. W. FROST,
Wyo. Guide.

Editor Outdoor Life:—Yours received and you can depend on me to help all I can on the bear bill. I think the smallest regular bear trap is No. 5, but you know there are several methods of trapping, such as deadfalls and pens; they are often caught in pens and left to starve. I found the carcass of one in a pen that had surely starved.

STEVE ELKINS,
Mont. Guide.

Editor Outdoor Life:—I am in receipt of your letter and copy of "act to protect bears," and in answer I must say that while I have been a close student of the contents of Outdoor Life ever since I have been large enough to read, I consider the present undertaking one of the most important and widest steps Outdoor Life has ever taken. In all of my experiences in hunting bears I will say that I have only known of a couple of incidents where bears have molested stock, and none whatever where they have killed wild game animals. After studying the proposed act I heartily endorse it all and would suggest July and August as a suitable closed season. This would enable sportsmen to hunt spring and fall, and at the same time protect the bears while the fur is no good.

J. W. WARNER,
Alberta, Can. Guide.

Editor Outdoor Life:—Replying to your favor of the 22nd ult., would say that the draft of bear bill sent me is a good one and should meet the approval of the people. In this state the closed season should be from June 1 to Nov. 15. Bear seldom do any damage to stock or game; once in a while you hear of a bear attacking a hog or pig and in that case the owner soon gets the bear. The bear of today is not what he was fifty years ago. He is a very timid animal and stays in seclusion most of the time. They are never fit to kill in the summer time, as they are poor and mangy. During the fall months they fatten on acorns and berries and hole up (in California) from some time in January to about April 15, and when first coming out of their winter quarters are fat and remain so until about the last of May. It is probably not known that a great many people who eat bear meat will not eat the same or use the fat of one that is caught in a trap claiming the meat is feverish on account of the suffering the bear endures while held by the trap. Abolishing the trap is a good

idea. If restriction is not put upon the killing of the bear it will be only a short time before they will be extinct.

E. W. GOE,
Calif. Guide.

Editor Outdoor Life:—Your proposed bill is what our bears need. I am for their protection and to stop the trapping of same in steel traps, as it is not only cruel, but a good many bears stand for days and finally cut the foot off and escape minus one foot. This statement I can prove by showing the three-footed bears we have in the Yellowstone Park. I have watched these bears, both black and grizzly, and can honestly say they are not very destructive to animals of the game variety. I consider a bear is very harmless to either man or beast; he will always make his escape if possible. As the bear is a scavenger and will eat anything he finds dead, he gets the credit for killing much game and stock that in reality is killed by lions. I don't believe that bears kill grown elk or domestic stock. I went to an elk carcass that was reported killed by a large grizzly—and the party said he saw him kill it and also eating it. I took two good dogs, went to the kill and circled it a time or two looking for tracks, as there was no snow, so I left it to my lion dogs. Well, they left on the run, baying for all they were worth, and in a short time began barking at the foot of a tree containing a large male lion. Now, if I had not caught that lion and trailed him from the kill, Mr. Bear could never have proved his innocence in the eyes of that man.

HENRY ANDERSON,
Official Lionkiller in Yellowstone Nat'l Park.
Mont.

VIEWS OF SPORTSMEN, AUTHORITIES ON THE BEAR.

For several reasons I am totally opposed to the trapping of grizzlies for their skins, to poisoning them and to permitting any hunter to kill more than one grizzly per year. In other words, I think the time has come to protect this animal, at least everywhere south of latitude 54°. As a state asset, every live wild grizzly of adult size is worth from $300 to $500 and as a hunter's grand object it is worth much more. The trapping and poisoning of this noble animal should be prohibited at once throughout the whole United States and southern British Columbia, and this prohibition should stand forever. . . . Eliminate the bears from the Canadian Rockies and a considerable percentage of the romance and wild charm which now surrounds them like a halo will be gone.—W. T. Hornaday in his Book, "Campfires in the Canadian Rockies."

Among a number of baseless fancies concerning the bear, the one that I particularly notice is that he is a ruthless destroyer of elk, deer and other game, as well as a ravager of cattle and horse herds, and a devastator of the woolly flocks that dot the foothills of the Great Continental Divide; and this wide-spread opinion has crystallized, through the agency of rural statesmen, in various territories and states, into legislative acts offering bounties for the scalps of these so-called predatory brutes, when, as a matter of fact, the poor creatures are as innocent of the destructive propensities with which they are charged as their accusers and persecutors are devoid of common sense.—Major J. B. Thompson, Colorado Pioneer, once Indian Agent in Colorado; stockman, sportsman, naturalist.

Eagles of Southwestern Alaska

Editor Outdoor Life:—Formerly eagles in Alaska were protected by the United States government, presumably for sentimental reasons. Today they are not protected and have not been for several years past. The reasons for the change of sentiment, especially towards the eagles of Southwestern Alaska, have been good and sufficient. Southwestern Alaska has no forest area or timber of any kind larger than the wind-and-snow-bent alder, which in a timbered country would be classed as brush, and this only grows in favored spots. The most of the country is open grass land, swamps, tundra and mountain peaks, and the keen-eyed eagles have something more than an even chance on young foxes, ptarmigan and ducks, and every season they destroy many young blue foxes that are being propagated for profit on the many fox islands in this vicinity. I am told that there is a bounty of 25 cents for each eagle killed, the bounty being paid by the owners of the fox ranches.

The most of the shore line along the coast is bold and precipitous, with sand or gravel beaches at the heads of bays. You will find the eagles perched on cliffs, crags and headlands along the rugged coast, and sometimes on peaks 1,000 feet high and a mile or so inland; and again they can be seen on the tide flats or gravel beaches feeding on dead fish that have been cast up by the sea.

They usually build their nests on the face of some cliff and inaccessible to anything but a bird; and yet only last spring I found an eagle's nest with young in it on a sand dune not more than sixty feet above sea level and which could be easily approached by man or beast. But I will add, this is the only eagle's nest I have ever seen that could be so easily approached. The nest is built of dried sticks; then feathers and down that the eagles pluck from their own breasts. They mate in April and the female lays turee eggs, and the male and female guard the young birds when hatched and both bring food to their young, and should the mother bird get killed her mate still continues to care for the little ones.

Young eagles remain in and near their nests until large enough to fly. They hesitate to make their first effort to take the air and usually begin by making short jumps from rock to rock with wings spread. Occasionally a young eagle is backward in trusting its wings and is unceremoniously pushed from its perch by the parent bird. When first hatched and until they are 2 months old they are fed on food disgorged by the mother bird. After that period the food is brought to the nest as caught, and the young birds are taught to rend and tear their own food.

There is a brown-headed eagle here with

Mrs. Bales in the field, holding an 8-foot eagle.

white tail that is black-tipped. This eagle is found more inland. I caught three of them in my wolverine traps last winter. Then we have the eagle with the white head and tail; this variety is found more on the coast line.

The young birds of the white-headed variety are black and do not get the white head and tail until the third year.

While I know that they destroy many game birds and some young foxes, yet they can soar higher with more apparent ease and grace and have a keenness of eye and a range of vision unsurpassed by anything that wears feathers; and where, in all the land, is there a bird that can "take the air of him?" L. L. BALES.

Alaska.

Note.—I enclose also a letter written by my wife on an experience with an eagle, together with a photograph of her holding a large one.—L. L. B.

Editor Outdoor Life:—Enclosed you will find photo showing an eagle I killed with a .22 rifle. This eagle measured 8 feet from tip to tip of its wings. I have been much interested in articles in Outdoor Life as to whether or not eagles will attack children. Personally I believe they would if the conditions were favorable for the eagle. Last spring I left my year-old baby sleeping in a baby carriage a few yards from my front door while I went to meet Mr. Bales, who was coming home in a boat. I was 100 yards away from the house when Mr. Bales called, "Look out for the eagle and baby!" I looked, and about 100 feet above the baby and soaring in a circle was a large eagle. I screamed and ran to the baby as fast as I could. The eagle left at once. I have seen many eagles here (Stepovak Bay, Alaska Peninsula), but never before or since have I seen one so close to our house.

Alaska. MRS. L. L. BALES.

"Record Moose Antlers"

Editor Outdoor Life:—I regret to observe that Mr. W. Norton very thoughtfully omitted the portion of my letter to him which conflicts with his claim to the possession of "the largest mounted perfect moose head in the world," based on a 74½-inch specimen. Perhaps my entire letter will be interesting in this connection. It was as follows:

"September 15, 1914.

"Mr. W. Norton, No. 2001 Market Street, San Francisco, Cal.:

"Dear Sir—Evidently the author of the article in Outdoor Life made a mistake in regard to the locality of the 78½-inch moose antlers. They are in the Field-Columbian Museum—not here. Our widest moose antlers spread 76 inches, but we have another pair, very much finer, which spreads only 75½ inches. Both are from the Kenai Peninsula, Alaska.

"W. T. HORNADAY, Director."

Our 76-inch antlers are on a "mounted perfect moose head," and beyond this note the specimen can speak for itself.

New York. W. T. HORNADAY.

Effect of the Springfield on Oregon Deer

Editor Outdoor Life:—Enclosed you will find a picture of three out of seven bucks killed by one party of Portland hunters while on a vacation to South Oregon, September 12 to 28, 1914. We were lucky in getting big ones, as we had a seven, a five and two four-pointers.

Two of the large bucks were killed with the new U. S. A. Springfield rifle. They drop in their tracks, especially if the soft-

The party and some of the game.

point is used. Some say the steel conical-point is no good for large game, as it cuts too clean, but as a rule they do not hit square and the result is a nasty, torn wound. With the regular U. S. cartridge we penetrated 3½ feet of green fir at seventy yards.

Oregon. HUBERT F. LEONARD, M.D.

A Novel Game Bill with Excellent Features

Editor Outdoor Life:—I enclose an outline of a game law which I expect to have introduced into the coming Assembly of Colorado. Look it over and make such suggestions as you see fit:

MERIT SYSTEM.

For the protection of game animals and extermination of depredating animals in the state of Colorado.

Let the male deer represent a standard, or one coupon.

One male mountain sheep, (5) five coupons.

One male elk, (5) five coupons.

One male antelope, (5) five coupons.

For which permits are issued to kill the above animals by the presentation of certificates of proof as to the killing of depredating animals in proportion as follows:

One (1) wolf, coyote, lynx, lynx cat or eagle represent (1-5) one-fifth coupon.

One mountain lion represents (5) five coupons.

Permits shall be issued by the state game and fish commissioner to any person presenting a suitable number of coupons, which represent the animal he or she wishes permits to kill. Coupons or permits to be transferable, the latter to be of record on the books of the state game and fish commissioner before same is valid.

For each permit or transfer of a permit a fee of $1 shall be collected by the state game and fish commissioner. Any person using a permit shall at all times keep the state game and fish commissioner informed as nearly as possible of the location and under whose guidance they are hunting.

Each hunting party shall employ one guide who is a licensed game warden, who shall receive a maximum fee of five dollars ($5) per day and board. His duty shall be to cancel each permit to correspond with the date on which game animal was killed.

Any resident of Colorado may take out a guide license, upon giving satisfactory references to the state game and fish commissioner. Permits to be used only from September 1 to November 5 of same year. This system shall in no way interfere with the resident or non-resident license.

Proof of killing depredating animals shall be made by affidavit and presentation of head, or not less than both ears with connection strip, before the county clerk of county in which said depredating animal was killed, for cancellation; county clerk to collect 25 cents for each affidavit.

The county clerk shall either destroy or punch a quarter-inch hole near the back of each ear and issue certificate or coupon for same.

Close the season on bears from June 10 to September 1, following, and limit the bag to three bears to one person in one season; prohibit trapping bears at all times. If a bear harrasses or kills stock of any kind in

a certain vicinity, the nearest game warden may issue a permit to destroy same if he thinks it necessary. W. H. PIGG.

Colorado.

The above is a novel idea in game conservation laws; we do not know that we ever before even heard of a suggestion on the same lines. Considering the large number of game animals that is illegally killed every year in Colorado it does look as if a man who would go out and earn the privilege of killing an elk or a deer or an antelope or sheep in this commendable way should be able to get such a trophy by law. As a matter of fact, by merely killing one mountain lion he would save the lives of many deer and elk a year. Mr. Pigg's bear bill, we are glad to say, is along the same idea as our own, published in another part of this number. We hope, instead of drawing up another bear bill text that he will concentrate his support on ours. We gladly commend his proposed measure on the "Merit System" to the consideration of our sportsmen and legislators.—Editor.

A Coyote Hunt

Editor Outdoor Life:—Having seen so little concerning coyote running with dogs of late, and being an ardent devotee of that sport, I thought a little account of a recent hunt might be in order.

Leaving Denver at 6 a. m. on November 15 in an auto, I arrived at the C. J. Elliott ranch, forty-three miles east, at 8 a. m. Two horses were saddled, and together with my companion, we were soon cantering over the prairies with ten hounds trailing. These dogs are mostly fine-bred Russian wolfhounds with one or two cross-bred greyhounds in the bunch. Scarcely an hour's ride and the first coyote was sighted—a big one—and the hounds were off in a bunch. Our coyote had evidently been chased before, because he hit the breeze with such alacrity that he made a getaway.

We pulled up our panting horses and waited for the dogs to gather. After about a ten-minute rest we were off again, riding down an arroya; out ran the second coyote, and after as pretty a race as I ever saw the first dog in, then the coyote, while the others piled on. There was some fight for a few minutes, as he was a big dog coyote and game to the finish. We soon skinned him up and hung the pelt on behind. Luncheon was in order, after which we were off again. Our second coyote proved to be another big one, but the dogs pulled him down in about a quarter-mile run and his pelt went up with the other.

In all we ran four, and when I say ran, I mean just that, because nearly all these coyotes in this section have been run before and they don't "stop, look and listen," but use the "safety first" policy.

Mr. Elliott and I have run a good many coyotes in the last four years, and he has a fine bunch of hounds, some thirty-five in all. The country near his ranch, which is fifteen miles south of Strasburg, Colo., is ideal for this sport—to me one of the sportiest sports still left in the West. L. V. ALMIRALL.

Colorado.

Game Notes

From our old friend, Dr. A. H. Sawins of Spokane, Wash., date, October 13, 1914, we received the following: "I was out to try a new 20-gauge Parker on quail the other day. We killed thirteen birds. Quail are quite plentiful here in Spokane County and most good. Shooters got the limit during the first of the open season. Hungarian partridges, which are protected in this state until 1920, are nearly as numerous as quail. We saw as many as fifty or sixty during the day. They are a stronger and more gamey bird than the quail and will furnish fine sport bye and bye."

A proposition comes from one of our Utah game associations that ought to be attractive to game bird propagators in a country where "bob whites" are plentiful. It reads as follows: "We want to stock our state with 'bob white' quail, and the sportsmen will have to stand one-half of the expense. I thought you could help us out by a mention in Outdoor Life that we would like to exchange blue-crested quail for 'bob whites' or any other bird that would thrive here. As we have our sportsmen interested in stocking rather than killing everything in sight, now is the time to get busy.

"STATE FISH AND GAME COMMISSION.
Per W. F. GALLAGHER."

Salt Lake City, Utah.

The Department of Agriculture has undertaken the investigation of a serious disease which is affecting the Rocky Mountain bighorn sheep and mountain goats, and is reported as existing on the Lemhi national forest in Idaho. The forest officers think that it is the same disease that caused the mountain sheep to die in great numbers during 1882-3. The nature of the disease is not known, though it results fatally and sheep affected with it seem to have rough and mangy coats and are very much emaciated.

The Shotgun Shooter's Outfit

After a number of years of hunting, or to be more strictly correct, shooting, whenever the opportunity offered, most men have arrived at definite conclusions as to the kit or outfit best adapted to their individual requirements. I beg to submit the following with apologies:

Footwear.—Napoleon has been reported to have said that he made war not so much with the arms as the legs of his soldiers.

Now, what we wear on our feet day in and day out, if we wish to be able to walk without discomfort, is an all-important subject. The ordinary, average, individual man is a blamed idiot as to the requirements of his feet and usually suffers when he puts upon them any unusual strain. Anyone who has taken part in army operations, not necessarily real war, but playing at war, will remember the trouble most militia had in this respect and the expedients they adopted to avoid it, and how much less the trained soldier who had been taught to look after himself suffered. And at that the amount of disability from foot injury even among trained soldiers in modern armies is enormous.

It is reported that Kitchener is walking his recruits twenty to thirty miles a day with full kit, something like forty pounds, to harden them up before tackling the Germans. I can well believe it.

Something like 80 per cent. of the shoe-wearing population of the world have deformed feet, caused by ignorance of their needs, the dictates of fashion. The lasts modern shoe makers put out are mostly horrible, and most men, however careless they may be about their personal appearance, insist on buying shoes much too small for them, mostly too narrow and almost always too short, and suffer accordingly.

In respect to one's ability to choose one's shoes the following will suffice. A battalion of Uncle Sam's boys took a practice march in foot-wear which the men had themselves selected, marched eight miles, went into camp for twenty-four hours, then returned by the same route. On the first day 30 per cent., and on the last day 38 per cent. were found to have severe foot injuries. Eight companies of regulars marched about 120 miles in shoes that had been selected for the men by the Army board, which had been previously worn from twelve days to two weeks. The hike covered nine days, shortest march eight miles and the longest twenty-one. Not a single man failed to complete each day's march as a result of foot injury; nor was there any trouble even of a most trivial nature.

If there is one abomination in foot-wear it is the laced-up-to-the-knee, so-called waterproof hunting boot. I never had one pair that did not deceive. They are as hot as rubber boots, and produce even worse blisters. I see no need for any shoe of the type to be any higher than is necessary to tuck the trousers into, and at that think ordinary rational walking shoes with either soft cloth leggins, though they do get to look like Halifax after a while, or puttees, much more comfortable.

I prefer the cloth legging, and sometimes have thought the puttee was too stiff for bodily comfort. The English have a cloth spiral winding puttee that looks very sensible, but I never did have the moral courage in these Western wilds to even wear them.

About the only use I have for a shoe more than ankle high is in early fall before the water is too cold. I just naturally hate rubber boots; have suffered under them for years, and only use them when wading after water birds becomes necessary. I put on underwear that comes just about to the knee, tuck the bottom of my light trousers into the lowest boots I can use, and wade right into it. It is not bad if there is only enough water to wash the mud off. When through I take off the shoes and get them as dry as possible with a dirty handkerchief, put on a dry pair of socks and let the trousers flap loose. Later in the season when rubber boots become necessary, if any extensive walking has to be done to and fro, from the shooting ground, I prefer to wear ordinary shoes and pack the rubber abominations. It is very advisable if going to sit in a boat or blind, that as little walking as possible be done in the rubber boots one must necessarily wear, if one wishes to have warm feet. Where wading is not going to be done, a felt boot with rubber overshoes, such as motormen wear, is the only thing, for very cold weather.

I have always found it necessary to have hobnails in the soles of any hunting shoes I use, for there is a big difference in walking on dry grass without. I have to take mine off, however, always on the back porch.

As between moccasins and an extra heavy

pair of socks, for rubber boots, I prefer the socks. The kind most stores sell for the purpose are altogether too long and need pulling up hard from behind, and are a fruitful cause of blistered heels. All wool or half wool rather than cotton should be used every time.

For the last three months I have been wearing daily a pair of the Army shoes, now in use by Uncle Sam's boys, and can strongly recommend them to anyone who wishes, for what is to me the most comfortable and rational shoe for all purposes I ever wore. I begin to know I have toes at last. It is a heavier shoe than most men would want to wear every day, looks very broad, has a soft toe cap, an awfully hard thing to find in any shoe and most essential in an outdoor boot, has a single sole (any double sole is an abomination and interferes with proper foot action), is only ankle high, and has a very soft upper. Uncle Sam's boys whom I have spoken to speak well of it. They are fitted to them standing on their right bare foot, holding a forty-pound weight—very different from the ordinary civilian method. The main thing that strikes one is the distance apart of the eyelets in Army-fitted shoes. It does not look very neat, but it is necessary, as the shoe gives after wear. If the eyelets are close together the support of the laces cannot be maintained on the instep, which is very necessary in the Army shoe. The Army authorities spent a great deal of time arriving at the present type of foot-wear, and I am inclined to think civilians will find in it the ideal shoe for outdoor wear. It is not waterproof, but keeps out water well.

If when a shoe begins to hurt, one will sit down, take it off and readjust his socks, trouble in the making may be avoided. Should the place be inflamed, and a blister not yet formed, a piece of zinc oxide plaster, which is better heated with a match and applied to the spot. Walking then can generally be resumed without further trouble. Blisters that have not broken should be pricked with a needle or knife point that has been sterilized by fire if nothing else is available, the water pressed out, and a piece of zinc oxide plaster applied, which can be left on for a day or two. The skin generally grows fast again to the foot. Blisters that have the skin off, are a nasty thing, and sometimes become infected. They should be cleansed with some antiseptic, and protected from the sock with surgeon's gauze. To apply a wad of anything, such as cotton, will only increase the trouble. I got a case of blood poisoning once by neglecting one.

In general, the outdoor shoe should fit tightly around the heel, have no support under the instep, be loose enough over the toes so that they can be wriggled freely, be long enough so that the toes do not strike the front of the shoe, have the eyelets far enough apart so that it can be laced tightly over the instep, and have a soft, not a box, toe.

When shooting in very warm weather I find the most comfortable way to carry one's shells and game is in a bag slung over the shoulder—no hunting coat at all. I don't like a belt; generally only wear one in deference to my wife's wishes, until I am outside of civilization, when I put on suspenders.

During colder weather I use a hunting coat, so-called waterproof. After a while they make the finest figure of a man look like a dirty tramp. Washing is commonly supposed to take away what little rain-resisting qualities they possess. I have a "Burberry" English-made coat, that cost as much as a pump gun, that is fairly waterproof, but like much of the English hunting material is far too heavy. A shell vest with loops is the only comfortable way to carry cartridges, when wearing a coat.

Decoys for Duck.—I have done very little shooting on open water birds, such as canvasback and redhead, but on inland marshes half a dozen live decoys are worth four dozen blocks. They are rather a bother to carry in a crate, and for humanity's sake should only be set out in shallow water, where they can touch bottom. I have only used the leg fastening; don't like the looks of the ring around the neck, but many's the wetting I have had picking up, which the neck fastening should avoid.

The wooden folding decoys I have often used when one has to walk far and carry something to fool the birds. I always thought they were wonderfully good. The canvas blow-up affair is a messy article in warm weather, always lacking something or leaking.

Boats.—For marsh shooting in shallow water where there is not dangerous open water, there is no better boat than a Green Bay duck boat. It does not row well, but can be pushed better than any other I know of, and can be easily hidden in a blind. For single handed hunting, either going up or down rivers where birds may be jumped, bow facing oars are a necessity.

Paddling a canoe is a good way, but if untrained, hard on the knees and an awful ship to drive if not very expert in open water in a blow.

Guns.—If I had only one, it would be as follows: twelve-gauge double barrel, two triggers absolutely, about quarter choke right and half left, one ejector, thirty-inch barrels, weight about 7¼ pounds, this for a general purpose gun.

My objection to small bores is that if full choke they shoot too closely at short range and if open bored are not much use at distant chances. Seven-eighths or 1-ounce shot can never be made into 1¼ ounce; neither can a 20 or a 16-bore shoot shot larger than 7s well. Their range naturally is limited. I

have seen men use a 20-bore well on quail and snipe, but they were exceptional shots, and could kill more birds than most men if they had used a 28 as against a 12. I personally never saw a man kill ducks well with a 20. It might be done over decoys, taking the easy chances.

To return to the gun of my fancy. It is double barrel, because I think one less liable to get out of order than any automatic or pump gun. It seems more sportsmanlike, too. It has two triggers. One may be walking after snipe with a right hand barrel loaded with 8s, left 6s; up goes a duck, and you have just got to let those 8s go first. A single trigger, it seems to me, is first and foremost best adapted to shooting either live birds out of a trap, or doubles at clay birds.

I like differently bored barrels for game, and want to be able to drop back to the closer choke if necessary. My boring of barrels may seem a bit peculiar, but taking chances as they come, most game is killed by the first barrel within 25 yards and no other boring will give the same chance. I hate the pattern most pure cylinders give, or I would use it.

Personally I use a full choke gun and almost always a brush load for the first shot. I have found 12-gauge brush loads really do give an open pattern, and kill well.

The ejector makes most guns hard to open, and means another set of locks liable to get out of order.

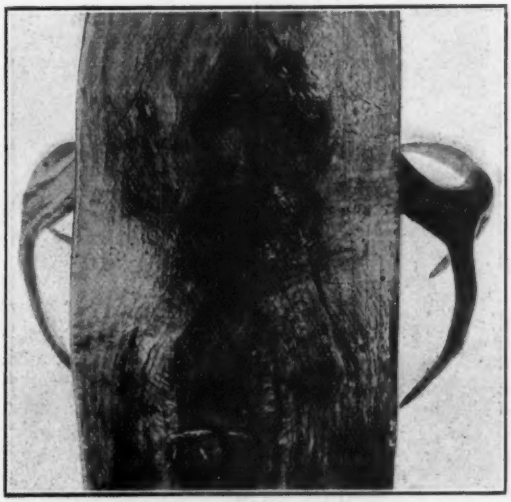
Thirty-inch barrels give better alignment than shorter ones. The weight, 7¼ pounds, is necessary when buying an American-made gun, with 30-inch barrels, and on a pinch, one can shoot 3¼ drams powder and 1¼ ounce-shot without getting kicked down.

I find 8s soft good enough for quail and snipe; 6 chilled for prairie-chicken, grouse, ducks and rabbits; 3¼ drams Dupont and 1¼ ounces 6 chilled will stop anything that a 12 ought to stop.

Most of those $20 pump guns give wonderfully strong shooting at long range.

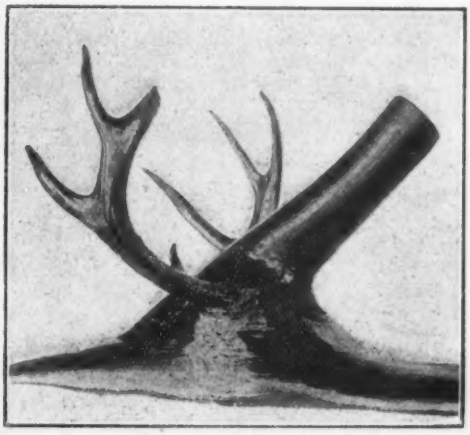
Illinois. FRANCIS B. FOX.

This Curio Could Relate an Interesting Story



The horns as they were found embedded in tree.

Editor Outdoor Life:—I am enclosing you two pictures of a curio in the way of a pair of deer horns and skull and neck bone embedded in a scrub oak tree. The deer had been killed and the head and horns hung over the limb into the crotch of the oak tree, evidently when the tree was a mere sapling. A person can only guess at the length of time since this happened. The main trunk was over a foot in diameter and the limb about eight inches (at point where head is) when the tree was cut for wood. The horns were discovered pretty well up toward the top of the tree after the tree had been sawed down. The piece was found by my brother-in-law, W. G. Hale, of this place (Ashland, Ore.) about four years ago at Cottage Grove, Lane County, Oregon, where he lived at that time. He has dressed down the outside of the wood so that it is a great deal smaller than it was in order to show the skull in the crotch where the wood grew over it. The neck bone shows on the other side, all in perfectly sound state, in one of the slowest growth woods known. He has polished the wood and varnished it. Mr. Hale values it very highly, but would like



Tree trimmed down to show deer's skull.

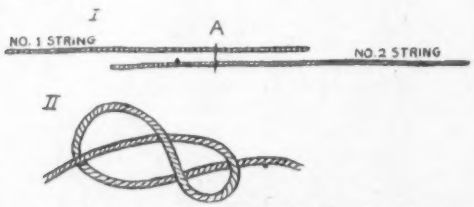
to dispose of it if he could get a good price for it. He expects to have it on display at the world's fair this year.

Oregon. M. C. HOWELL.

Party of Indians near head of Stickine River, B. C.

Snowshoes

Having seen Mr. A. A. Thomas' query about a knot that will hold in sinew, will say that the figure 8 is the only one I have found that will do so absolutely. I will give a diagram in case he doesn't know how to tie it.



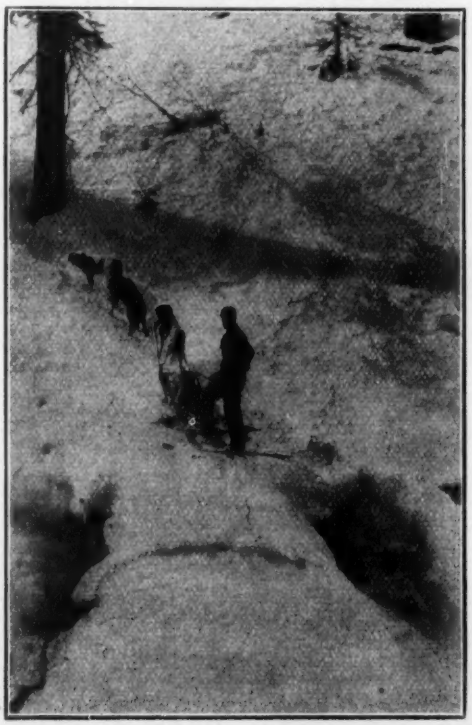
To join two slippery strands with Fig. 8 knot, lay two strings together as in Fig 1; then tie the knot, Fig. 2, at the point marked A in Fig. 1, the double strands as one; pull tight carefully, then it can't slip.

I have never heard of anyone using sinew to fill a snowshoe with, though, and do not believe anything will beat caribou hide babiche 1-16th-inch wide for heel and toe filling and moose hide ¼-inch wide for foot filling. The fine mesh is about ⅜-inch apart and the foot filling an inch or 1¼ inches apart.

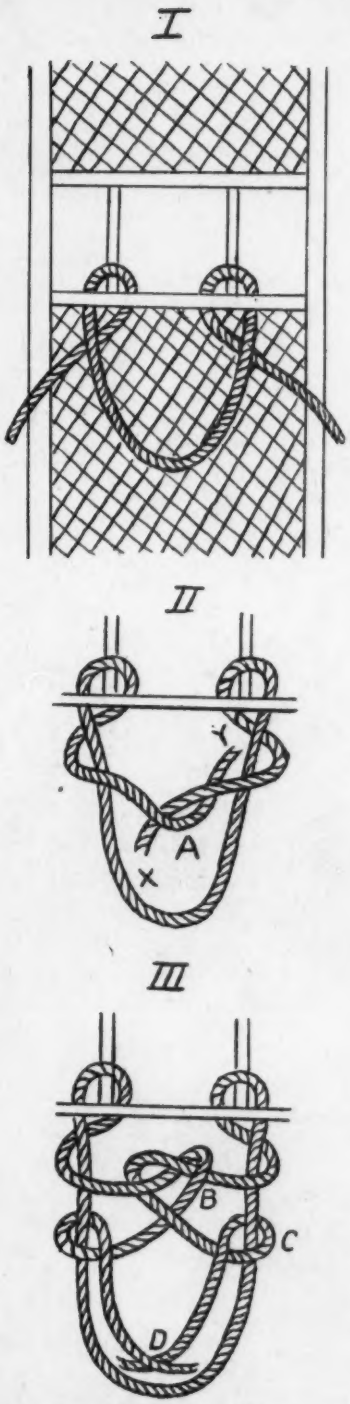
I put in six years trapping and hunting with the best all-around snowshoers in North America, viz., the Tahl Tahn Indians at the head of the Stickine river in northern British Columbia.

That is a mountainous and heavily timbered country with a snowfall of from three to ten feet.

They look with the greatest contempt on the Eastern shoe, "frying pans" they call them. The Tahl Tahn shoe is from 4 to 6 feet long and from 12 to 16 inches wide, according to the weight of the man and the depth of the snow. The frame is usually made of white spruce saplings or a birch big enough so that each quarter makes one "stick." They are turned up almost at right angles and the filling is put in so as to have a concave side to the snow which stops side slipping when on a side hill and facilitates sliding or running down hill. They are quite the best shoes, as any one who ever uses a pair is always ready to admit. Even the Cascas, a neighboring tribe from the

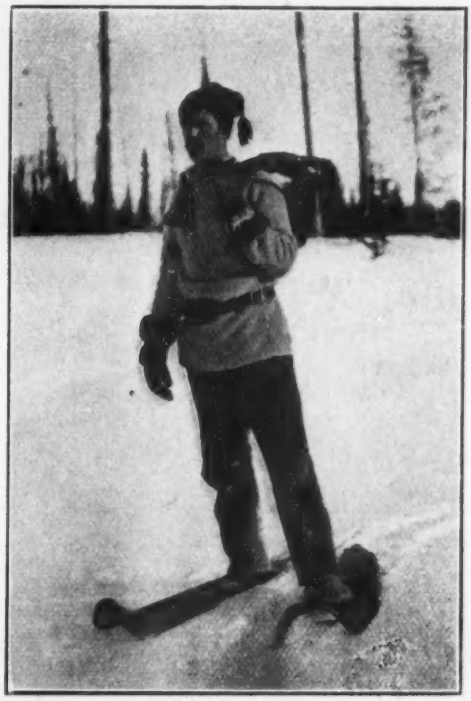


Showing Tahl Tahn shoes on a hill; small trail shoes.



THE TAHL TAHN TIE.

Put the tie string on shoe as in Fig. 1; put foot in it to get right length, then take the loose ends and tie an ordinary knot as tight as you think you can stand it over the toes, as in Fig. 2. Then double the right-hand end Y back to the left and the left-hand end, X, over the right, making an easily untied, binding knot (see Fig. 3); then take a half hitch (see Fig. 3) on each side of the foot and pull up on the string. That will tighten the whole tie. Then tie the strings permanently behind the heel at D. To take off shoes, put one on top of the other and bend the knee forward, twisting around the foot till the toe comes clear; reverse the process to put on.



The author on Tahl Tahn shoes with usual winter hunting outfit.

Liard river, will often buy a Tahl Tahn's shoe, preferring them to their own excellent shoes which have a sharp, flat turnup. They are just as good in a flat, wooded country but not so good in the mountains.

Now as regards tying on the shoes; that is half the battle in snowshoeing. Buckles and straps are not good at all.

The Tahl Tahn tie which I will endeavor to illustrate and explain is undoubtedly the best, using either lamp wick or a tanned moose hide thong. It gives one far more control over the shoe than other ties and is easy to get in and out of, which is essential to any tie to be at all useful.

For footwear in cold weather all that is necessary is two pairs of pure wool sox and two square pieces of H. B. Co. blanket, 12 or 14 inches square, and a pair of "buckskin tanned" moccasins, moose hide being the best. Put the foot down on the blanket

Showing shape and filling of the Casca shoe.

nearly in the center and fold the two front corners over the toes, taking care to have them flat over the toes with the fold so as to bring a double thickness over the toes, then shove the foot into the moccasin, letting the heel part of the blanket find its own way in.

Nothing should be sewed over the toe-string or filling under the foot to prevent wear as it will ball up even in cold, dry weather. Let the filling wear out instead of your feet.

We seldom used rubbers at any time as they soon cut through at the tie string, and if the snow is wet you will get wet anyhow, and if it is warm enough to be wet the wet won't hurt you in moccasins, and they and the blankets are easily and quickly dried in camp over the fire. I say over advisedly, because if you hang 'em on a pole over the fire in the smoke and sparks they will not burn nearly so easily as before the fire, and dry quicker.

It would not be a good scheme to weight the tails of shoes as the crust in the spring would soon wear the tails off them. If the shoe is built right it's one's own fault if one falls over them. Even without the weight one generally has to put false bottoms on the shoe from behind the footfilling to the tails.

When hunting in the spring on the crust if the shoes make too much noise, that can be remedied by putting a strip of deer or caribou hide on the bottom of the frames,

Showing Casca shoes and pack outfit, off to the mountains for sheep in the fall.

hairside down; or a strip of blanket will answer almost as well.

Snowshoeing on a pair of good, big shoes when the going is good, only going down two or three inches is very nice, but when it is not it's h—l.

FRANK BULLOCK-WEBSTER.

Canada.

The Real Munson Army Shoe

By Chauncey Thomas.

Since my two articles in recent issues of this magazine on army shoes, I have had many write in telling me that the army shoe could be obtained almost anywhere, and especially from such makers of this shoe as Herman & Co. of Boston or from Leibold & Co. of San Francisco, and others. Both firms advertise the army shoe, but to date I have not yet been able to obtain the real article. After six months' effort I have just

received a shoe from Herman & Co., via the Tritch Hardware Co.'s sporting department, Denver, that has the real Munson sole and upper, but another variety of top, or part up around the ankle. The shoe I now have has eight lace holes, and is, I fancy, about one inch higher than the real Munson last army shoe.

I prefer this modified model, however, to the real army upper, as the real army article is designed to be worn with a leggin, and to be laced hurriedly, if need be, or in the dark. It apparently is not as neat an upper as that I now have. Still the fact remains that after six months' effort, writing here and there over the country, I have not yet been able to get the real, sure-enough army shoe just as it is described in the official army report on this shoe.

I have found many so-called "army marching shoes" for sale, but these are built along the old and discarded army lasts. It is itself a fine shoe, costing only $4, and easily the equal of any $7 shoe on the market, except in fancy finish that is of no use whatever except to sell a shoe. Such as a polished sole, for instance.

The various people who have been writing to me about shoes, with just one exception, unconsciously mean the old army shoe, not the new Munson shoe of which I have written somewhat at length.

Herman & Co. made one pair of the real article in black leather to special order for a gentleman in Chicago and offered to do the same for me. But it took him over two months to get the shoes.

After some weeks of delay and several letters, Herman & Co. sent on to the Tritch firm three of the modified Munson shoes, as I have just described them. I had one pair stained black for 25 cents and had the tongues padded heavily for another 25 cents. The result is a good looking shoe with plenty of room for the toes, but that fits snugly over the instep. The padded tongues allow me to lace the shoe tighter than with the plain tongue, and I do not feel the laces at all.

You can get the real Munson last from either Herman & Co., or Liebold & Co., but you must **insist** on the Munson last, and then see that you get it. The first order to Herman by Tritch for three dozen pair of the Munson shoes resulted in none of them whatever, but in all of the old army model.

The Munson shoe is not shown in the catalogue Herman & Co. sent me. Leibold shows it in a large sheet circular, but this shoe is like the one I have, with a modified —and I think improved, for ordinary purposes—upper. The real Munson has but six large lace holes, remember, and the sole is practically straight from heel to big toe.

The old army model, for sale in so many stores, bends in about ¼-inch along the big toe edge.

My foot measures just 4x10 inches. I took a 7½EE Munson last shoe, padded the tongues, and with medium-weight wool sox the result is just right. For heavy wool sox I would take an 8EE. Hang vanity! I want a peaceful soul. Who can tell the difference with the eye between 10 5-6 and 11 inches length in a shoe on your foot? That 1-6 of an inch means ½-size larger, and comfort.

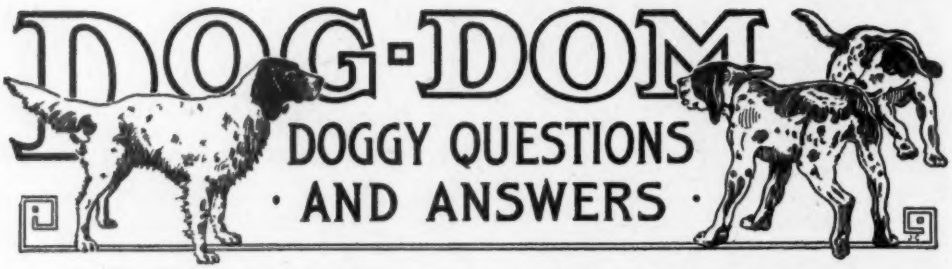
I hereby thank those who have written to me about the army shoe, but with the exception of the gentleman in Chicago, they have evidently been mistaken. They have a good shoe—but not the new army shoe.

The Dingle of My Dreams

I know a wood where giant firs
  Shoot upward towards the skies
Like venerable sentinels
  On guard for centuries.
There in the shade of a leafy glade,
  In the warmth of stray sunbeams
I long to be in the west with thee
  In the dingle of my dreams.

I know a babbling, gurgling brook,
  Dearly loved by wary trout.
The angler dreams, so it seems,
  To cast his hook and yank 'em out.
In the still of night the soft moonlight
  With heavenly alchemy gilds its beams.
A silence deep, and a golden sleep
  In the dingle of my dreams.

HELEN HUNTINGTON-BOSWORTH.



Conducted by ED. F. HABERLEIN, Author of The Amateur Trainer.
TRAINING, HANDLING, CORRECTING FAULTS AND CARE OF THE BIRD DOG.

J. L. O., San Francisco, Calif.—Having been a news-stand subscriber for the splendid magazine, Outdoor Life, for the last four years, I take the liberty of asking some advice, namely. I have a good watch-dog who, from much lying down, has contracted a sort of growth or callous on his front elbows. It is red and about the size of a dollar, exudes a fluid which stains the hair adjacent to it, the hair falls out, and has very bad odor. I also notice on his skin on other portions of his body dark spots devoid of hair. Is this mange, and what will cure it?

Answer.—Dogs lying around most of the time, especially on hard floors or stone walks, will develop a sort of warty growth on hips, shoulders and joints of the legs, which does not yield readily to treatment because the pressure on same spots remains continually. In course of time these warty callouses become inflamed and exude a fluid of very disagreeable odor. The regular mange remedy has a beneficial effect if applied once a day for a week or longer to affected spots, and also has a tendency to make new hair start on bare places. Supplying a rug, straw or other soft material to repose on will facilitate healing and prevent recurring.

W. J., Portland, Ore.—I have a young Airedale that I would like to "salmon cure" if possible. Have heard that if given a small cube of salmon every day for two weeks it would make immune to salmon poisoning. Would this cure be permanent, or would the eating of salmon in later life, say five years later, affect him?

Answer.—Much trouble is experienced in your section by dogs getting salmon poisoned—many dogs die therefrom and there is no cure, aside from making a dog vomit soon as possible after partaking of the fish. But it is not of eating moderately of fresh salmon that dogs die. Dead fish, lying around and becoming putrid, generate a poison which kills. Feeding cubes of fresh salmon would have no effect for present immunizing and much less five years hence. To prevent dog picking up and devouring putrid fish is the only thing to be done. Getting dog to vomit soon as possible after eating poisonous matter may save him. One tablespoonful of common salt dissolved in water and poured down his throat usually has the desired effect and is most easily and quickly procured. Ten grains of sulphate zinc is a good and efficient emetic. Following emptying of stomach with half pint melted lard or oil, also fresh sweet milk, has beneficial effect and may save the dog.

W. P. L., Spirit Lake, Iowa.—I have taken Outdoor Life for a number of years and would not like to miss a single number. Am much interested in the dog department and should be pleased to have a question answered which I have not seen answered before. I have an Irish water spaniel and am thinking of cutting his tail like a fox terrier's. Do people ever do that, and do you think it would be satisfactory as far as looks are concerned?

Answer—The water spaniel's mission is retrieving from water and while swimming the tail is employed as rudder, hence if deprived of the caudal appendage he would be vastly handicapped. A stump-tail, similar to that of a fox terrier, would not give the water spaniel a dignified appearance, but rather disfigure him.

T. G. H., Homewood, Ill.—Kindly answer this for me. I have a pointer pup, one year old, registered, and his pedigree shows that he is bred from some of the very best stock. He is a very fine hunter, stands well and has plenty of sense, but at the crack of the gun he is off and nothing can stop him till exhausted and comes in all winded. Trusting that you will be able to devote a few lines to this subject, thank you in advance.

Answer.—As you have a good dog, one worth the trouble, you need not be discouraged, but "a few lines" would not suffice, and to give the full procedure necessary would require too much of space al-

lotted to this department. However, the "Amateur Trainer" imparts the modus operandi in detail, clearly and comprehensively, so that to follow the instructions is an easy matter and the result perfectly satisfactory. Get a copy of the book (from this magazine) and in one afternoon your trouble along this line will be over—breaking shot is easily, quickly and permanently overcome by applying approved methods.

W. L., Houston, Tex.—About six weeks ago I sent my pointer bitch to be bred to a noted dog in another town. The bitch has lately developed a severe case of mange and upon inquiry I learn that the dog in question had the mange at the time my bitch was served by him and still has it. Now, will you kindly state whether the puppies, when they come, are likely to show the effect of it? The bitch has lost nearly all the hair from her back and sides and is scabby all over. Am using lard and sulphur on her, which seems to improve her, but has not effected a cure yet. Can she be cured before whelping?

Answer.—It was quite indiscreet to breed to a mangy dog; coming in contact with diseased dog, doubtless, is cause of your bitch having mange so badly. The offspring, most likely, will be affected and come in diseased condition if bitch is not fully cured very quickly. The remedy you name has but very little curative effect; relieves but does not cure; because the parasite remains under the skin. See ad "Mange Cure" in this issue, apply as directed and in course of a week all will be over. She should not whelp in same place kept in while diseased, or at least all the bedding must be burnt and kennel whitewashed in and outside beforehand.

T. M. A., Salem, Ore.—I have an English setter, past one year old, that gives me lots of trouble whenever I take him out hunting. He ranges well and finds the birds. but will not stop and point, gives chase and is hard to get back. He also takes delight in chasing hogs and other stock every chance he gets. Will he overcome this bad habit as he gets older?

Answer.—Apparently this dog has never been trained, merely taken afield and supposed to work to the gun in business-like manner without having been made obedient to orders, as is necessary by the course of yard training. Of course, many a well-bred bird dog does not point game birds in business-like manner at one year old, and must be made steady by proper handling, but since he hunts well and finds the birds, too, he can be made to work satisfactorily by proper training. Chasing pigs, sheep, etc., is not an unnatural thing for a bird dog to do, but must be overcome by making obedient to order to desist.

F. H., St. Paul, Minn.—My English setter bitch is five years old, fairly well broken, has had lots of work on game in former years and was staunch on point, but is now the opposite. During the summer I sent her to the country and in the country life she had unlimited freedom, getting demoralized, killing chickens, chasing rabbits, squirrels and anything giving opportunity. Since getting her back home she has been labored with and belabored—all to no purpose, apparently ruined for life. She always was an energetic hunter and I realize her present tendencies are only natural instinct gone wrong. While afield and close in, she minds reasonably well, but let her get far out—well, I just have to let her have her own way about everything. At her age, is there any chance of ever getting her over these faults?

Answer.—Not "natural instincts gone wrong" but again become natural. Unrestrained freedom and ample opportunity brought that about, but the fault may be overcome in a five-year-old dog just as speedily and even quicker than if a mere puppy, because she knows better than to endure a severe snubbing more than a few times for the same offense. Put the force collar on her when put down to work, have trailing cord about forty feet attached; at slightest refusal of orders and misbehavior give an effective snubbing in accordance with directions on page 81 of the "Amateur Trainer." A few "reminders" of that sort will suffice. Later on merely let her wear the collar with but short end of cord dangling to remind her of its presence and what might happen if disobedient.

A. L., Deep Creek, Wyo.—I find it a difficult matter to keep my setter pup, nine months old, in range in brushy covert, such as we must hunt in here to find any birds at all. How should I proceed to tame him down and make work to the gun?

Answer.—A young dog should be made perfectly steady and obedient to orders before taking to thick underbrush. If, thereupon, your dog proves still too active and rushes about wildly, put the force collar and check cord on him, the cord not to be more than four or five feet long with no loop or knot at the end to prevent entangling or getting fast. This alone will tame him down very soon, as the impediment inflicts punishment. For heavy brush land hunting a slow dog is required, and a pup should not be worked therein the first season at least, unless intended always to be used in such country, because it will result in a slow, pottering worker for all time.

Accuracy of the Colt .45 Automatic Pistol

S. J. Fort, M.D.

The term accurate, when applied to a firearm having a grooved barrel, has a different significance when applied to shooting that weapon. Without going deeply into a discussion of the intrinsic factors that make for the accuracy of such firearms, let it be admitted that all high class revolvers and automatic pistols are as accurate as it is possible to make them.

The M/11 Colt automatic pistol as issued to the regular army and organized militia belongs to this accredited class, but when the accuracy of its shooting is considered, it is necessary to choose one of several angles from which to discuss the question.

If we consider it from the old-time gun-fighter's view point, which called for a quick draw and discharge, the automatic certainly is the equal of the revolver for this purpose, but we have but little information or experience for comparison in this respect, as the revolver and gun-fighter have both passed.

The qualification course authorized by the United States firing regulations of 1913, in force this year for the military automatic, calls for a certain number of shots at a silhouette figure of half a man, at 15 and 25 yards, with the following procedure. The magazine is loaded with five cartridges, inserted into the pistol, a cartridge thrown into the chamber, the hammer let down, the pistol placed in the holster and flap buttoned. The target is exposed from the pit, with the edge toward the firing point, and when the soldier is ready, at a signal from the firing point the target is turned and remains fully exposed for three seconds at 15 yards and four seconds at 25 yards. The instant the target is turned the soldier draws and cocks the pistol and attempts to fire one shot. The pistol is kept in the hand for each of the remaining four shots, one being fired at each turn of the target.

A three-second interval in which to draw, cock and fire a shot is none too long if the manipulation of both holster flap and pistol is not smoothly accomplished. For this reason the first shot may be counted a miss, but no shot of average ability has a right to miss the other four shots at 15 yards. At 25 yards with a four-second interval there is ample time to draw and fire the first shot, but the silhouette is but 19½ inches wide, and with a six-pound trigger pull a shot may be pulled off, or, if hurried and the sights not properly aligned, other shots may be lost; here, again, the average shot should make possibles.

This is the only authorized firing that resembles the gun-fighter's style, though other forms of moving or disappearing targets may be used.

Friends and fellow-citizens who still cling to their favorite six-gun would have no trouble to keep close to the soldier armed with an automatic in this practice at a silhouette. I have no doubt there are plenty who can fan the hammer, roll the gun or shoot from the pocket and hit a target of this kind at fifteen or twenty-five yards, and if they find enjoyment in such practice, who should say them nay?

Most of us, I fancy, are more directly interested in the little we know of the military automatic pistol fired in practice and competition under rules that require similar shooting by all who may indulge in either.

First let us take some figures from government pamphlet No. 3800, revised, February 14, 1914, concerning this pistol, adding for comparison the same figures relative to the Colt army revolvers of .38 and .45 caliber.

The tables show the mean radial and mean vertical deviation of all three weapons at fifty yards, shot from a muzzle rest.

Distance 50 yds.	Mean radial deviation.	Mean vertical deviation.
.45 Automatic	1.356	0.910
.38 Revolver	1.533	1.400
.45 Revolver	2.042	1.724

Roughly estimated from these figures, the automatic may be said to shoot into a 4-inch circle, the .38 into a 5-inch circle and the .45 revolver into a 6-inch circle, at fifty yards with a muzzle rest, which may be termed the absolute accuracy of each weapon, and its ammunition. From this we can gain some idea of the possible accuracy of the weapon when fired with no other support than the muscles of the hand and arm.

The only facts we have in regard to the automatic .45 and the accuracy of its shoot-

ing in competition are the scores made in the National Divisional Pistol Match at Sea Girt, N. J., September 8, which being made under proper supervision may be considered authoritative, even though the number of entries was small.

The conditions of this match called for four distances—seventy-five, fifty, twenty-five and fifteen yards—with three classes of fire—slow, timed and rapid. Each competitor fired two strings of seven shots at fifty and seventy-five yards, 20 seconds for each shot. Two strings of seven shots at twenty-five and fifty yards, 30 seconds for each string. The same number of shots at fifteen and twenty-five yards, 15 seconds for each string. Total number of shots, 84; total possible number of points 840.

All firing was done on the "L" target, the regulation army pistol target, having a 5-inch bull, counting 10. Measuring from the edge of the bull, the 9, 8, 7, 6, 5 and 4 rings are each 3½ inches wider than the other, which would make the 9-ring 8½ inches in diameter, the 8-ring 12 inches, the 7-ring 15½ inches and so on out to the 4-ring, which would be 26 inches in diameter.

Comparing the dimensions of this target with the table of deviations it is seen that the pistol fired from a muzzle rest is capable of shooting into the bull at all distances required by the conditions.

The highest scores made in actual firing are the only ones considered in the following tabulations and diagrams.

At seventy-five yards, slow fire, the highest individual total out of a possible 140 points, was 113, a percentage of 80 plus; the average percentage of the ten highest totals was 73 plus.

At fifty yards, slow fire, highest individual total, 125, a percentage of 89 plus; average percentage of ten highest totals, 77 plus.

At fifty yards, timed fire, highest individual total, 110, a percentage of 78 plus; average percentage of ten highest totals, 69 plus.

At twenty-five yards, timed fire, highest individual total, 131, a percentage of 93; average percentage of ten highest totals, 87 plus.

At twenty-five yards, rapid fire, highest individual total, 123, a percentage of 87 plus; average percentage of ten highest totals, 78 plus.

At fifteen yards, rapid fire, highest individual total was 137, a percentage of 97 plus; average percentage for ten highest totals, 87 plus.

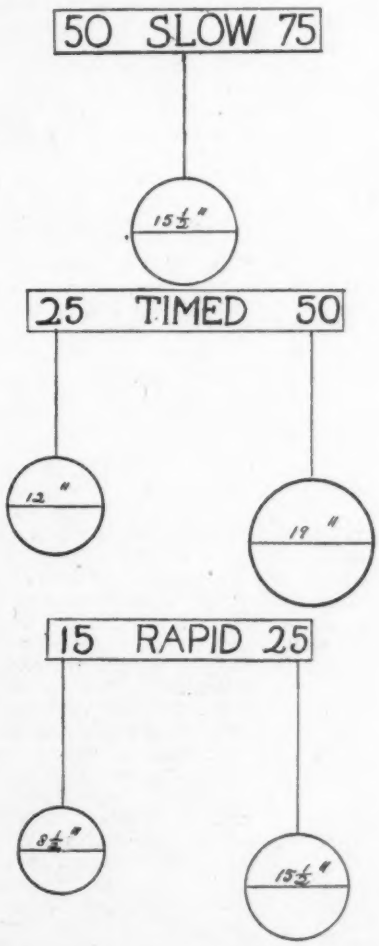
PERCENTAGES OF HIGHEST INDIVIDUAL TOTALS.

Distance in yds.	Slow Fire.
50	89
75	80
Timed Fire.	
25	93
50	78
Rapid Fire.	
15	97
25	87

AVERAGE PERCENTAGE OF TEN HIGHEST TOTALS.

Distance in yds.	Slow Fire.
50	77
75	73
Timed Fire.	
25	87
50	69
Rapid Fire.	
15	87
25	78

From the last tabulation we may diagrammatically show the relative diameters of the hit groups corresponding to the percentages measured on the target.



For example, the average percentages of ten highest totals at fifty and seventy-five yards, slow fire, were 77 and 73, which is an average of 75 for both distances, or an average of 7½ points per shot. The diameter of the 7-ring is 15½ inches, and a majority of the hits must have been inside this circle. The average percentage at twenty-five yards, timed fire, being 87, the majority of hits

must have been well within the 8-ring, which measures 12 inches in diameter.

The curious fall in percentage and remarkable widening of the hit group at fifty yards, timed fire, individually and collectively, is difficult to understand and still more difficult to explain. The sights of the pistol are very coarse, and in certain lights it is difficult to define the front sight clearly on the target. The pistol is undoubtedly very sensitive to irregular movements, which may be caused by the combination of trigger and grip-safety pressure, one working against the other unless the grip presses the safety in far enough to clear its influence on the trigger. The barrel being larger than the bullet may also be a factor in causing wide shots.

After firing one thousand shots my own experience coincides with the percentages given above very closely. It is not difficult to keep a series of five or seven shots in the bull at fifteen and twenty-five yards with good conditions and careful holding, and one naturally expects wider groups when shooting under a time handicap.

Shooting carefully at fifty and seventy-five yards, I admit being puzzled by frequent wide shots, when the hold has apparently been good, and a rather extensive correspondence and conversation with a number of far more expert shots than myself has brought out the fact that they are puzzled also.

In conclusion it may be interesting to give further information of exterior ballistics quoted from the pamphlet already mentioned.

Rapidity of Fire.—Twenty-one times in 12 seconds, beginning with pistol empty and loaded magazines on a table at side of operator.

Firing at twenty-five yards, at a target 6 feet by 2 feet, under the same conditions as above, 21 shots were fired in 28 seconds, making 21 hits with a mean radius of 5.85 inches.

Drift.—Drift or deviation is to the left, due to the rifling, but is more than neutralized by the pull of the trigger when the pistol is fired from the right hand.

Velocity and Striking Energy.—Muzzle velocity, 802 feet per second, with an energy of 329 ft.-lbs. At 250 yards, velocity is 666 and energy 226 ft.-lbs.

Penetration.—At twenty-five yards, 6 inches white pine; at 250 yards, 4 inches.

Trajectory.—The maximum ordinate for 250 yards is 4.29 feet at 126 yards from the muzzle. With an angle of departure of 45 the range is approximately 1,955 yards, the maximum ordinate being 2,219 feet.

Smokeless Powder in Revolvers

Charles Newton.

Smokeless powder was first used in shotguns, then in rifles and lastly in revolvers. In shotguns and rifles it has become the standard "food" for all except the rim-fire cartridges, but its position in the revolver-shooting field is still challenged at times. Many are surprised and displeased that they do not obtain results from the use of the smokeless inspiration in the one-hand gun proportionate to those obtained by its use in the larger weapons. The small-bore rim-fire rifles and the revolvers call most emphatically for the smokeless product on the ground of cleanliness as well as smokelessness, so long as the ballistic properties of the cartridges can be maintained, let alone being improved. Our factories have been most diligent in their endeavors to furnish us with powders suitable for reloading the ubiquitous ".22 short, long and long rifle," and also the "six-gun" cartridges, yet still there is complaint. If the ground of this complaint cannot be removed yet it may be a source of some satisfaction to know the reason why smokeless powder does not do as good work in these cartridges as does the black. Also in case we cannot make the powder to work well in the revolver we may be able to make the revolver work well with the powder.

Black powder is a mechanical mixture of carbon and oxygen, mixed in such manner that the molecules of the two substances are adjacent to and in contact with each other. All it needs is the slightest touch of flame to cause them to unite, when the whole mass is transformed from a solid into a gas in a very limited time. A spark from flint and steel is sufficient, as evidenced by the centuries during which the flintlock was the standard system of ignition of firearms.

Smokeless powder is a chemical mixture in which the oxygen and the burning substance are incorporated in the same molecule, and it requires a far greater degree of heat to ignite it, and it burns far more slowly. Even the primers used in black powder cartridges were insufficient unless a priming of black powder were added. Therefore our principal trouble is in the difficulty of burning smokeless powder.

One of Nature's laws is that the more highly a gas is compressed the higher the temperature and vice versa. Likewise the hotter the gas in which a combustible substance be placed the more quickly will it burn. Applying these to our powder kernel we find the higher the pressure in the barrel of the gun the faster the powder burns. Put a piece of anthracite coal in the parlor

stove and it takes a considerable length of time to get it ignited and burning; throw the same piece of coal into the firebox of a great boiler and it will almost spring alight. Here is the trouble with our powders:

The chamber pressures of high-power rifles are about 50,000 pounds per square inch. The chamber pressure of an ordinary shotgun load is about 6,000 pounds per square inch. The chamber pressure of our revolver loads are even lower, while those of the .22 rim-fire cartridges are still lower.

We obtain the speed for our bullet by transforming a solid into a gas, while under confinement, and the expansion of the gas forces the bullet out the muzzle. Our propellants do not turn into gas instantaneously, although they seem to our senses to do so. They burn progressively after ignition. The black powder begins to burn at the rear end of the charge and burns forward to the base of the bullet, driving bullet and unburned powder before it until all the powder is burned. In case the bullet reach the muzzle before the powder is all burned the unburned powder is thrown out the muzzle; hence our grandfathers used to tell of how much powder a rifle or shotgun would burn, recognizing limitations upon the amount. Many even now think one can load so much smokeless powder into a cartridge that it will not all burn.

Smokeless powder, on the other hand, ignites throughout the entire charge from the flash of the primer and burns from the outside of the kernel towards the center, thus obtaining its progression. When the barrel is too short to permit the powder to burn completely it is the unburned center of each and every kernel which is thrown out, not as in the case of black powder, those entire kernels next the bullet. From this it will be seen that, contrary to the rule in black powder guns, the more powder put into a cartridge the more it will burn, since the added powder increases the pressure of the gas, thus increasing its temperature and increasing the rate of burning of the kernel and reducing the time required.

With these propositions in view we approach our revolver cartridge. We find first a short barrel, thus cutting down materially the time of confinement of the powder. The powder must be speeded up in its rate of burning or it will be thrown out partially unburned, since the bullet has but a few inches to travel while it is burning. Next we find the barrel is not a continuous tube, sealed tightly at one end by the cartridge shell and with the bullet sealing the bore ahead of the pursuing gases; it is really two tubes, placed end to end, and, as the Irishman said, "both a little bit short." There is always more or less of an opening between the cylinder and the barrel, and as soon as the bullet has passed this opening the gases begin to flow through it, thus reducing materially the pressure within the barrel where the kernels of powder are burning. This reduction of pressure, as we have seen, reduces the temperature of the gases and consequently the rate of burning of the smokeless powder kernels enveloped by the gases. Therefore the most of the impulse given the bullet must be given before its base enters the barrel, as after that time but little of the smokeless powder is burned. The expansion of the gases already developed must do the balance of the work.

Black powder, on the other hand, does not require a high pressure in order to burn rapidly, consequently much better results are obtained by its use during the period after the bullet has cleared the cylinder; which brings us to the question of speeding up our smokeless powder, that it may not only burn more quickly and develop pressure before the bullet clears the cylinder, but that it may burn as much as possible in the reduced gas pressure after the bullet is in the barrel.

The firing of a cartridge is exactly like building a fire. The powder is the fuel and the primer is the match. The stronger the flame developed by the match the more quickly will the fire kindle. Pour turpentine or kerosene upon the fuel and it will help materially. Blow it as soon as it ignites and it burns faster. The turpentine, the kerosene and the current of air all act alike in that their function is to put oxygen in contact with the fuel. Oxygen is a supporter of combustion. Combustion cannot take place without it. Shut a lamp or candle under an airtight dish and it will go out as soon as the oxygen is exhausted. When a person's clothes take fire we wrap them with rugs, blankets, etc., to shut off the supply of oxygen and "smother" the fire, exactly as an animal will smother if deprived of oxygen. Kerosene and turpentine burn freely because they readily mingle with and abstract the oxygen from the air.

Therefore we may speed up our powder by increasing the amount of oxygen in the kernel. This is done by nitrating it more completely and by adding nitroglycerine, which contains a heavy oxygen content. The limitation is found in the fact that when more than a certain amount of nitric acid has been absorbed the resulting guncotton will no longer colloid, or dissolve, suitable for powder. There is likewise a limit to the amount of nitroglycrine which is safe.

Then we turn to the kernel itself and make it smaller, thus increasing the area of burning surface. This is exactly as in kindling a fire we whittle our shavings to start it with. A revolver charge bears exactly the same relation to a rifle charge as a barrel of pine shavings bears to a barrel of maple stovewood or coal. Our whole problem is thus seen to be in speeding up

the powder until it will burn freely under the pressure actually found in the barrel of the revolver, yet not so freely as to wreck the revolver before the bullet leaves the cylinder.

The problem of the .22 rim-fire cartridges is to make the smokeless powder burn under a pressure which will not rupture the rim-fire shell at the head. The reduction of pressure due to the joint between the cylinder and the barrel explains why the smokeless .22s do not do proportionally as well in a revolver as in a rifle or pistol.

The measure of success now attained with th rim-fire .22s is due to the use of an abnormally strong priming of the shell, the gases from the priming not only more powerfully igniting the powder, but serving as a propellant as well. This explains why the use of these cartridges is so prone to lead to the rusting of the barrels at the breech. The primer gases contain a great deal of free acid which must be thoroughly cleaned out and neutralized or it attacks the steel.

Another cause of trouble in using smokeless powder in revolvers is in the fact that no suitable cartridges for this purpose are in use, nor are there any revolvers adapted to suitable cartridges. All our revolver cartridges were designed for black powder and are more or less suitable for that purpose. They have, when loaded with smokeless powder of the Bullseye type (which is the only kind which is really dependable, the bulk powders being too badly affected by atmospheric conditions) far too much air space in the shell. This air space dilutes the heat of the primer flame and thus ignites the powder more slowly than it should, and the powder is completely ignited only after it has burned for a sufficient period to raise the pressure, and consequently the heat of the gases to the proper point; meanwhile the bullet has been started along towards that fatal seam between cylinder and barrel. It makes a sort of modified hang fire.

We have standard charges for our smokeless revolver cartridges. It is doubtful if much over one-half, by weight, of these charges is actually burned; the balance is thrown out unburned except for what you may see sticking to the inside of the barrel after firing. We obtain a maximum pressure for our cartridge, being what the revolver will safely stand. If we increase our charge we will obtain too high a pressure after the powder is ignited. The trouble with this situation is the crest of our pressure curve is not reached until the bullet is too far along the cylinder. We should go no higher than we now go, but we should get there quicker, and we should burn all our powder. In no other way can uniform results be obtained.

In our present revolver ammunition, when loaded with smokeless powder, any variation of the crimp, the fit of the bullet, or any other factor bearing upon the resistance of the bullet, thus increasing the rate of burning of the powder, or the depth of seating, strength of primer or any other factor bearing upon the ignition or rate of burning of the powder, will give a variation in results, because the variation in rate of burning means a variation in the amount of powder actually burned. Either more or less than normal is thrown out unburned. By so adjusting our cartridge that all the powder is burned before the bullet leaves the muzzle we may obtain a far more uniform effect, in the face of these variations, than is at present possible. But how shall we insure the burning of the entire charge?

By reducing the size of the powder chamber. This necessitates a reduction of the charge with which the shell is loaded, a reduction of the amount thrown out unburned, but not a reduction of the amount burned in the barrel. Some years ago the writer made a series of experiments with a .38-44 Smith & Wesson target revolver. These revolvers use a straight shell running the whole length of the cylinder, the lip being next the rear end of the barrel; therefore there is no place where the bullet jumps from the inside the shell into the forward portion of the cylinder. The caliber took the .38 S. & W. Special bullets, and the shell was substantially the same diameter. The cartridges were loaded with the regular bullet and regular powder charge for the S. & W. cartridge, and the bullet seated to the same depth. The shooting was apparently the same. Then the bullet was seated not quite as deeply, and the force of the charge suffered accordingly and there was more unburned powder left inside the barrel. Then the bullets were seated slightly deeper than standard, thus reducing the air space in the shell, and the gun shot stronger and there was less unburned powder. This was continued until the pressures were raised as high as was deemed safe, and the barrel was free from unburned grains, while much more power was developed. The charge was then reduced slightly and the bullet seated deeper before developing the maximum pressure. This reduction of charge, accompanied by a deeper seating of the bullet was carried on until about 60 per cent of the normal charge produced about the same power as the standard cartridge and the powder was burned cleanly.

Therefore we are inclined to the opinion that until our manufacturers will make a new revolver for a new cartridge, built upon the lines of our automatic pistol cartridges, which in all probability the craze for automatics will never permit, our smokeless powder revolver ammunition will be more or less unsatisfactory to the man who likes

absolute uniformity in his ammunition.

Considered from the standpoint of the above, our revolver cartridges take up a somewhat new alignment regarding merit. Those having the least powder room in the shell are the most desirable from the standpoint of power. The .45 Colt and the .38-40, .44-40, .38 S. & W. Special, .32-20, etc., which have been used because of their ample powder room would give way to the .44 S. & W. Russian, .38 short, .32 S. & W. pocket cartridges, etc. These latter cartridges, together with the .41 Colt, when furnished with heavier bullets and loaded with smokeless powder will give far better results than will the cartridges of more "boiler room."

Ballistics at High Altitudes

A. W. Warwick.

In all the discussions of the ballistic performances of projectiles the idea seems to be almost universal that a rifle shooting a certain cartridge performs more or less uniformly. That is, if the cartridges are well made and if the rifle is in good condition the bullet thrown by that rifle will always have the same striking energy and velocity at any given range. The tables of energy, velocity, etc., of different cartridges as given in the catalogues of gunmakers are often taken by rifle users as definite constant facts under all ordinary conditions of firing.

While it is true that rifles do behave constantly in measuring out, so to speak, definite quantities of energy and velocity (so long as the same character of cartridge is used) yet a rifle loses all control over the bullet at the moment of discharge from the muzzle. Thereafter the atmospheric conditions take charge and finally determine the exact velocity and energy with which the bullet shall strike the target. Thus, while the rifle certainly does the same work at sea level as at high altitudes, the bullet behaves very differently in the respective places.

Considering now the effect of altitude upon the performance of a rifle bullet it is here advanced, as a subject for discussion, that a sportsman working around timber line will find that the bullet travels faster and strikes harder than it does at sea level, besides behaving differently in other ways. If this general proposition is provable, we have a general explanation why there is so much difference of opinion among sportsmen as to the relative merits of different rifles and also why the same rifle is rated differently by different users.

No unbiased reader of Outdoor Life can fail, after careful reading of the scores of articles on, say, the .30-30 Winchester rifle, to come to the conclusion that a rifle which may fall short of being satisfactory under some conditions may be quite satisfactory upon the same game in other circumstances. So many men of equal authority praise and condemn this particular weapon that no other conclusion is possible.

Having conceded the fact that a rifle weighs out a definite amount of energy to a bullet under all conditions, the subject resolves itself into the consideration of the effect of air resistance upon the bullet. It is unnecessary to go into the mathematics of the subject, and the simplest method of attack is to compare the behavior of a projectile in a vacuum and in air.

Text-books on physics teach that a projectile in a vacuum describes in its flight a perfectly symmetrical parabola. The angle at which it leaves the gun is equal to the angle at which it strikes the ground, and the summit of the curve is exactly equidistant between gun and target. Any fact connected with the flight of the bullet can be calculated by very simple mathematical formulas. The weight and shape of the projectile does not affect the curve of flight nor the velocity of travel. The horizontal advance of the bullet is uniform over the entire range of flight.

Now, in air the problems presented by the flight of a bullet are so difficult and complex that even the tremendous resources of higher mathematics fail to solve them. Only by the use of coefficients determined by experiment is it possible to calculate the behavior of a bullet, and then only approximately and under conditions which approach those under which the coefficients were determined. The curve described by a bullet traveling through the air is not a symmetrical parabola, but consists of two halves, in which the angle on striking the ground is greater than the angle on leaving the rifle.

The weight, size and shape of a projectile has a most important bearing upon its behavior.

The height of the trajectory and the range is less in air than it is in a vacuum.

Now, as sea level is left and higher altitudes approached, the density of the atmosphere becomes less and the conditions approximate more and more to those of a vacuum. It is apparent, therefore, that at such an altitude as timber line, say 12,000 feet, where the density of the air is only two-thirds that of sea level, the curve of a bullet, its velocity, height of trajectory, range and so forth, must approach to a more or less degree the conditions which would appertain in a vacuum. It is a question not of whether a bullet will behave differently

at high altitudes than at sea level, but whether the difference is great enough to be of practical importance.

Text-books on ballistics teach that the resistance of air to a projectile is proportional to the atmospheric density. On the assumption that this law is strictly correct for conditions at 12,000 feet, the behavior of a 12-inch projectile at sea level, in a vacuum and at 12,000 feet elevation may be compared. The following table gives the comparison in a convenient form:

	Sea level.	12000 feet.	Vacuum.
Angle of elevation.....	5°	5°	5°
Angle of fall.....	6° 15′	5° 50′	5°
Range, yds.	6200	6779	7937
Muzzle vel., ft. sec.	2100	2100	2100
Striking vel., ft. sec.	1493	1696	2100
Maximum altitude, ft.	457	478	521
Striking energy, ft. tons....	15147	22330	30610

From this table we see that the resistance of the air at sea level has absorbed over one-half the energy of the projectile between the muzzle of the gun and the target and that the loss is greatly reduced by the lower density of the air at such an altitude as 12,000 feet. Indeed, without any change in the cartridge or projectile, the 12-inch gun is 50 per cent more powerful, at the range given, than it is at sea level.

This example of the 12-inch gun has been chosen simply because it has been so thoroughly studied by army authorities that its performances are known with great precision. The columns of the performances at sea level and in a vacuum have been taken from the writings of Colonel Ingalls, one of the foremost world authorities on ballistics. The column of performances at 12,000 feet has been added by the writer, using the ordinary approximate ballistic formulas.

However, sportsmen would doubtless regard the behaviors of a sporting cartridge as more to the point now under discussion. Using the ballistic tables and taking a tenuity factor (0.66) suitable for 12,000 feet elevation, the velocities and hence the energies of a .30-30 bullet of 170 grains weight have been calculated for sea level and the altitude of 12,000 feet.

VELOCITIES AND ENERGIES OF .30-30 WINCHESTER RIFLE AT DIFFERENT RANGES.

	Sea level.	12000 feet.
Muzzle velocity, ft. sec. ..	2008	2008
Muzzle energy, ft. lbs.	1522	1522
100 Yards—		
Striking velocity, ft. sec. .	1735	1848
Striking energy, ft. lbs. ..	1136	1284
200 Yards—		
Striking velocity, ft. sec. .	1492	1700
Striking energy, ft. lbs. ..	850	1008
300 Yards—		
Striking velocity, ft. sec. .	1290	1580
Striking energy, ft. lbs. ..	629	949

This table brings out clearly the remarkable manner in which a .30-30 Winchester bullet holds up its velocity and energy at high altitudes. At 12,000 feet the bullet at 300 yards has practically 100 ft-lbs. more energy that it has at 200 yards at sea level.

If the behavior of the .30-30 Winchester at 12,000 feet is compared with the performance of the .33 Winchester at sea level we find that the former weapon at high altitudes is more powerful at all ranges beyond a hundred yards than the latter weapon.

So the mere fact that Mr. John Doe shooting deer in Newfoundland finds that the .30-30 weapon is inferior to the .33 rifle, after all does not militate against the dictum of Mr. Richard Roe that the .30-30 rifle does fine execution on the black-tail deer of the continental divide. Really, Mr. Roe's weapon is stronger than Mr. Doe's, in spite of the fact that the gunmaker's catalogue shows that the .30-30 rifle is inferior to the .33 rifle at all ranges up to 300 yards.

In other ways reduction of the density of the atmosphere affects the behavior of a bullet. Drift is so intimately connected with the density of the atmosphere that it is exceedingly probable to be less at timber line than at sea level. Probably the height of trajectory is a little greater at high altitudes and the velocity being so much more it is necessary to give a little less lead on running game at timber line than at sea level.

However, the really interesting point is that a rifle gains in power as altitude is gained. At first sight it would seem reasonable to suppose that the change of altitude would affect all rifle bullets equally. Thus the relative ratings of rifles, according to striking energies of the bullets at sea level, would prevail at high altitudes. This is erroneous.

In a vacuum the form, weight and size of a projectile has no effect upon the trajectory and velocity. In air it is all important; and this explains why different bullets with the same muzzle velocity behave so differently on leaving the rifle. Now it is clear that if in a vacuum the weight and shape of a projectile has no importance, then the higher up one goes it becomes decreasingly important as compared with sea level. The relative ratings of rifle bullets will change, therefore, with each marked change in altitude.

And from the foregoing it would appear certain that the wonderful improvement of the Spitzer bullet, as compared with the ordinary Ogival bullet at sea level, would not be so marked at high altitudes as at lower altitudes. Although, of course, since the density of the air at timber-line is by no means negligible, there would be still important differences between the behaviors of the two bullets.

It would be interesting to sportsmen if tables could be constructed showing the velocities and energies of different rifle bullets at various ranges and altitudes. If one could be certain of the correctness of the

ballistic tables now in use for the higher altitudes, the construction of such tables of velocities, etc., would be easy, only involving simple arithmetic. Unfortunately the ballistic tables have been calculated only for use at sea level, and it is by no means sure that they will apply strictly at such altitudes as 12,000 feet. There has been no experimental work to prove that they do.

The ballistic tables have been constructed from experimental work with the chronograph and by means of the higher mathematics. They have been devised for the single purpose of allowing those who have only elementary mathematics at their command to solve most problems in ballistics. Now the correctness of the tables depends quite as much upon experiment as upon mathematics, and if the experimental data is open to question it is a matter of indifference how high and how complex the mathematics may be. The tables would be valueless.

It would be out of place here to go deeply into the question as to why the means of calculating the velocities of bullets at high altitudes are to be questioned. Briefly, however, the matter may be touched upon.

The ballistic tables are based upon the famous researches of Bashforth on the varying resistance of air at the different velocities of a projectile. The resistance is not strictly proportional to the square of the velocity, but varies from the square (V^2) to the sixth power (V^6). This was determined for a wide range of velocity at sea level.

Now the significance of the fact that the resistance of the air changes with the velocity of the bullet is that the bullet is not at all times doing the same character of work on the air; or the character of the air's work on the bullet, which is another way of putting it.

It is a sound rule in experimentation that if the conditions, or any one of them, change to any radical degree it is not safe to rely on the results. We have seen that the change of velocity does affect the character of work on the air. A radical change in the density of the air will probably have a similar effect. It is altogether probable that chronographic tests on rifle bullets at high altitudes would introduce new factors into the ballistic formulas. With the entrance of the aeroplane into warfare (not to mention its apparent remarkable immunity from danger by rifle fire) it would seem very desirable to have authoritative chronographic tests at such altitudes as Denver and the high mountain plateaus. Until such tests are made only the roughest kind of approximations as to the behavior of bullets at high altitudes are possible.

Of course, the writer is not unmindful of the fact that it is taught by authorities that the air resistance has been experimentally proved to be strictly proportional to the density of the air. However, this applies only to the very moderate fluctuations at sea level and not to such wide ranges as between sea level and the altitude of 12,000 feet.

Now while anything like an exact table of performances of rifle bullets at different altitudes is not possible, yet enough has been developed by the foregoing considerations to show that the effective work of bullets shows marked differences at sea level and timber line. Certainly they do not perform equally under a wide range of conditions. To recapitulate some of the main points, we seem warranted in concluding that at high altitudes—

(1). Rifle bullets hold up better and hit harder at any given range than at sea level.

(2). The height of trajectory is greater and the angle of fall is less than at low altitudes.

(3). The increase in power of a rifle, at the 200-yard range, is probably about 15 to 20 per cent for each 5,000 feet of altitude.

(4). Probably the effect of "drift" is less.

(5). Owing to the somewhat higher velocity of the bullet at high altitudes, a little less "lead off" is necessary to hit a running animal than at lower altitudes.

Finally it would be of value not only to sportsmen, but also to advance the science of military ballistics, if the government could be induced to conduct an adequate series of chronographic tests on rifle bullets at places of high altitude. This country has facilities for conducting such tests far exceeding those of any other country whatsoever.

Note.—Mr. Warwick has touched upon a subject of great interest not only from the theoretical, but from the practical standpoint as well. Much game is hunted at both low and high altitudes, and most sportsmen would overlook the strong influence of altitude upon the carrying power of their weapons. Mr. Warwick uses the word "trajectory" as signifying the line of flight of the bullet from a given sighting when he mentions it being higher at high altitudes than at lower. This is as distinguished from "trajectory height," or the distance which a bullet rises above the line of sight between the muzzle and the target when the rifle is correctly sighted for the target. The trajectory height would seem to be lower at high altitudes, but the trajectory, or path of the bullet from a given adjustment of sights, would be higher. We trust to hear more on this most important subject from our readers.—EDITOR.

Differs with Mr. Thomas

Editor Outdoor Life:—While not a subscriber but a constant reader of your valuable magazine from cover to cover, I note, on page 283 of the September number, Mr. Chauncey Thomas' article replying to Jean Carr's inquiry about the height a .30 Government Springfield will shoot if aimed vertically and, in my opinion, the information given is so far from what actually takes place that I don't think it should go unnoticed. I agree with Mr. Thomas that it is well to lay aside all higher mathematics and consider the question from commonsense methods as far as possible and from data we can easily get. Therefore from tables published if we plot a velocity curve up to 4,500 feet (maximum distance for which I have accurate data) and extend that curve to 6,000 feet, we see the velocity at that point is about 700 per second and the time of flight is about 5.38 seconds. All of above data is from observations near the earth's surface, and, without going into higher mathematics to get at more precise data we will have to make some assumptions, but we will try to make them near the facts and according to conditions we all know exist, viz., we know the resistance of the atmosphere decreases as we go up. We also know that at 6,000 feet up there is plenty of atmosphere and that there is considerable resistance beyond that point, therefore to compensate for the neglect of the diminishing resistance up to 6,000 feet we will assume the ball to travel in a vacuum above 6,000 feet.

From the above data and velocity curve we find it takes 5.38 seconds for ball to travel 6,000 feet, with a remaining velocity of 700 feet. From the laws of gravity we learn that when a body is free to move, gravity will produce or retard velocity at the rate of practically 32 feet per second, provided there is no other force to interfere. Therefore the ball has lost velocity for 5.38 seconds or $5.38 \times 32 = 172$ feet (disregarding fractions) thus giving a velocity at 6,000 feet up of $(700 - 172) = 528$ feet per second.

From the well known formula $V^2 = 29s$ where V = velocity, $g = 32$ (action at gravity) and s = space or height to which a ball will rise in a vacuum of projected vertically. From this we get $528 \times 528 \div 64 =$ height or 4,387 feet higher, making a total of $6,000 + 4,387 = 10,387$, nearly two miles, instead of twelve to fifteen miles as Mr. Thomas had estimated. As a matter of fact the ball will not go that high by several hundred feet, due to causes that I did not mention as I did not wish to complicate the calculations any more than absolutely necessary.

Tenn. W. T. YOUNG.

Note.—Mr. Young's criticism of Mr. Thomas' article indicates that the question, which from a purely sporting standpoint is rather an immaterial matter, yet, in view of the extensive use of air-craft in the unfortunate war now raging in Europe, is of great interest to military men as well as to all lovers of the spiraled tube. We all wish to know what our favorites will do under all conditions.

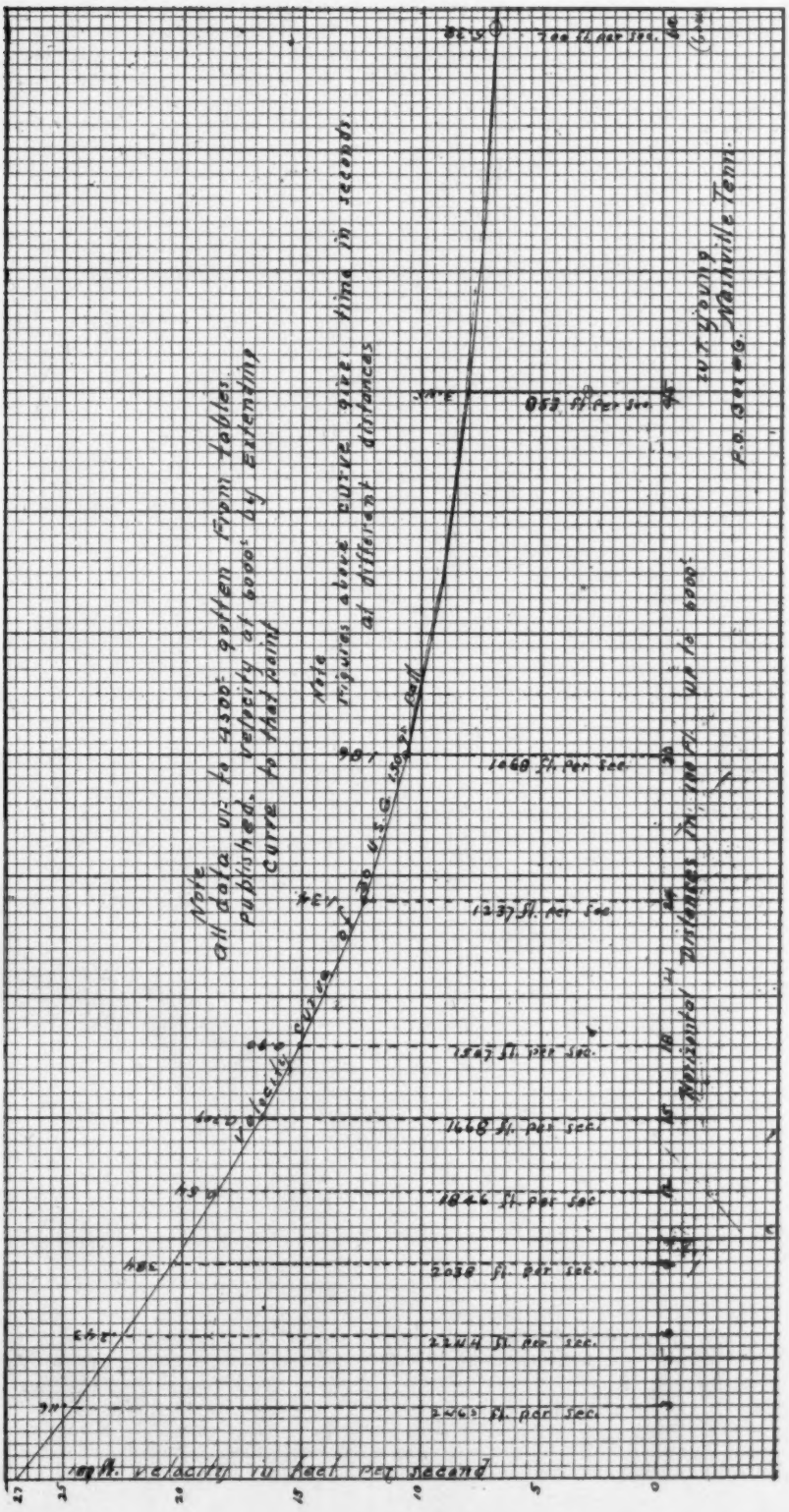
The diversity of conditions entering into the problem justify a great deal of approximation. We have to consider not only the loss of velocity, and consequently of energy, due to the flight of the bullet through a normal atmosphere, but the further facts that the density of the atmosphere is changing for every foot of upward travel, the proportion of resistance encountered by the bullet varies with each foot-second of variation of its velocity, and the direct and increasing pull of gravity reduces the range of flight. Considering the variation in air resistance alone we find that at 2,600 ft. sec. the resistance varies as the 1.55 power of the velocity; at 1,600 ft. sec. it varies as the square; at 1,125 ft. sec. it varies as the sixth power, from which point it recedes until at 800 ft. sec. it is again as the square. Therefore we may be excused from personally making accurate computations and have recourse to the results stated by military students who have both the training and incentive to indulge in the necessary mathematical exercises.

Concerning Mr. Thomas' estimates, he seems to have based them upon certain assumptions of fact, two of which seem erroneous:

First, he assumes that "about one-fourth of the muzzle energy of a bullet is used up in its total flight by the resistance of the air." The ballistic tables for the Springfield, model 1906, cartridge, as given by the Ordnance Department, show a muzzle energy of 2,430 foot-pounds; at 200 yards this has fallen to 1,686 foot-pounds—or decidedly over one-fourth of the energy gone thus quickly, and practically all consumed in overcoming air resistance. At 1,000 yards it has but 382 foot-pounds of energy left—less than one-sixth, and as the trajectory height is but 14½ feet, all except sufficient to raise 150 grains 14½ feet high in 1.86 seconds has been used in overcoming air resistance.

Second, Mr. Thomas has been advised that the extreme range of the Springfield cartridge is seven to eight surface miles. The same ordnance office handbook states the maximum range attainable to be 4,891.6 yards (or 2.7 miles) obtained by firing at an angle of 45° and requiring a time of flight of 38 seconds.

Had Mr. Thomas not been misled in his basic figures his method would doubtless have given very nearly the correct results, since approximation was all he sought.


Note
All data up to 4500 gotten from Tables
published. velocity at 6000 by Extending
curve to that point
Note
Figures above curve give time in seconds
at different distances
Velocity curve
1468 ft. per sec.
1237 ft. per sec.
1547 ft. per sec.
1468 ft. per sec.
1846 ft. per sec.
2038 ft. per sec.
2244 ft. per sec.
2463 ft. per sec.
Distances in Thousands of Feet
Vel. in ft. per sec.

In order to approximate somewhat closely the height to which we might expect our bullet to go we may make some comparisons between it and others the vertical ballistics of which have been computed.

In an article in The Field for October 23, 1909, Captain Hardcastle of the English army stated that he had computed the height to which the British blunt-point Mark VI. bullet would rise when fired vertically at 9,400 feet, and its return velocity at 500 foot-seconds. This bullet is credited with a ballistic coefficient of .388 or almost identical with our Krag; its weight, form and muzzle velocity are almost identical with those of the Krag; hence we may consider its extreme range as almost identical with the Krag. The Krag is credited by the ordnance office with an extreme horizontal range of 4,066 yards or 2.3 miles when fired at an elevation of 44° and its time of flight is 34.6 seconds.

Accepting Captain Hardcastle's figures as correct, and assuming the vertical range of the Model 1906 Springfield bullet is greater than that of the British bullet in the same proportion as its horizontal range, we find the vertical range of the Model 1906 bullet to be 11,035 feet, or 2.09 miles.

We claim to have no "special wire," and in fact know very little about the matter, and in the above have stated merely what we have read on the subject, together with the sources of our information, that it may be taken for exactly what it is worth. As a matter of curiosity, information, or whatever it may be called, we append a table of ballistics published last year in Arms and Explosives purporting to show the remaining velocity of the pointed Marx VII. and blunt Mark VI. English bullets together with time of flight and other data as to the pointed bullet when fired vertically; also the remaining velocity of the pointed bullet when fired horizontally. The data given in the table refer to the Mark VII. pointed bullet except the one column which gives the remaining velocities, at the different altitudes, of the Mark VI. blunt bullet. It will be noted that the remaining velocity of the Mark VII. bullet when fired vertically and horizontally are very much alike up to about 3,000 feet. Apparently the rarefaction of the air as the bullet rises almost exactly compensates for the additional drag of gravity over this distance, after which the retardation of gravity predominates. All of which may be placed in that large category of newspaper information entitled "interesting if true."

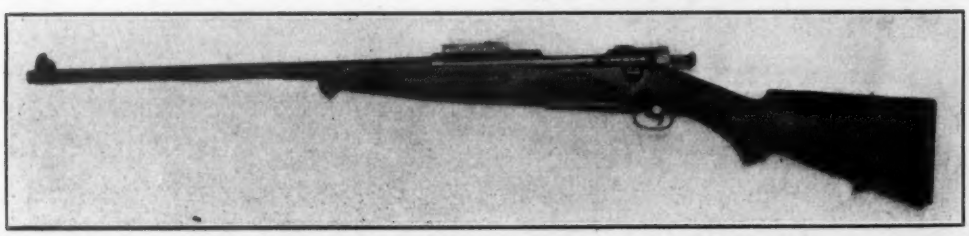
Altitude Feet.....	Time of Flight Seconds.....	Velocity at Altitude Foot Sec.	Velocity Fired Horizontally Foot Sec.	Energy at Altitude Foot Lbs.	Velocity Mark VI Altitude, Foot Sec.	% Gravity Loss to Total Loss.
0	.00	2440	2440	2297	2000	0
500	.20	2120	....	1735	....	2
1000	.45	1820	1818	1279	1420	2
1500	.76	1540	....	927	....	3
2000	1.13	1320	1329	672	1060	3
2500	1.53	1155	....	513	....	3
3000	2.00	1050	1055	425	890	4
3500	2.49	970	....	363	...	4½
4000	3.02	890	920	306	755	5
4500	3.60	825	...	263	...	5½
5000	4.25	760	815	223	625	6
5500	4.90	700	...	189	...	6½
6000	5.63	635	722	156	495	7
6500	6.54	575	...	128	...	7½
7000	7.50	515	635	102	365	8
7500	8.49	455	...	80	...	8½
8000	9.55	395	556	60	200	9
8500	....	320	...	39	..	9½
9000	....	250	484	21	..	10
9500	....	120	...	6	..	10
9840	....	0	...	0	..	10½

EDITOR.

A Remodeled U. S. Army Springfield

Editor Outdoor Life:—Thinking that perhaps the readers of Outdoor Life would be interested in knowing what could be accomplished in the way of remodeling the U. S. Army Springfield, I am sending a photo and description of one that was remodeled for me by M. J. Weber of the Weber Arms Co., Denver.

The stock is the original one that came on the rifle, but has been cut down to a sporting model. The pistol grip is nicely dovetailed into the stock and fastened with a dowel pin. It takes very close inspection to detect where the pistol grip joins on to the original stock. A tapered steel band was fitted three-fourths around the barrel



A photograph of the remodeled gun.

just in front of the rear sight block so as to do away with the sharp angle left by the removal of the wood on top of the barrel.

A Silvers recoil pad has been fitted which gives just the right length to the stock and absorbs some of the "punch" of the regulation cartridge.

The forearm has a screw about four inches from the end which goes a turn and a half into the barrel and tends to prevent vibration and barrel flip.

The pistol grip and the panels at the sides of the receiver are heavily checked, which adds greatly to the appearance of the arm. The front sight is a Sheard gold bead made for the Springfield. The weight of the rifle has been reduced to 7¾ lbs.

While this rifle may not quite equal the "Sportsman's Dream" as described by Lieutenant Whelen, yet it makes a very fine, well-balanced sporting rifle at a nominal cost.

F. H. CARPENTER, M. D.
Colo.

The Forthcoming Sunny South Handicap

The dates for the next Sunny South Handicap will be January 25, 26, 27, 28, 29 and 30. The shoot will be held under the auspices of the Houston Gun Club, Houston, Texas, and will have the usual larger amount of added money and a very attractive program throughout. Special railroad rates will be in effect throughout the United States. All shooters are invited, and everything will be in readiness for the pleasure and comfort of those in attendance. Program will be ready for mailing December 20. Address for further particulars, Alf. Gardiner, manager, 906 Franklin Avenue, Houston, Texas.

Concerning the Regular .22 Long Rim Rifle

Editor Outdoor Life:—I am very pleased to see Mr. Howlett's article on the useful .22 short but I think he stopped just a little too soon in his discussion of the .22 family. He should have included the .22 long because its greater range and killing power entitle it to a very high place in the small-game and varmint class. As far as I can see this fine little shell is almost totally ignored by all of the sportsmen who have written to the various sporting magazines.

In one particular I disagree with Mr. Howlett. He says it is necessary to shoot a horse or cow in the brain to kill them with the .22 rim-fire cartridge. I have killed several head of cattle with the .22 long rim-fire, some with three or four shots behind the left shoulder and others with one shot in the neck about two inches behind the ears.

I find the .22 long good for any animal in California up to and including the coyote, 'coon or wild-cat. I have stopped in all about a dozen coyotes with my Winchester, Model 1890, .22 long and I never had to go far to get one even if he was shot behind the ribs. These little bullets will go completely through a coyote at anything less than 100 yards and they certainly will mess up his interior in a frightful manner.

In the tests for penetration I made with this gun I obtained the following results:

U. M. C., black powder, 4½ inches.
U. S. C. Co., black powder, 4¾ inches.
Winchester, black powder, 4¾ inches.
Winchester, smokeless powder, 6 inches.

I used a good solid Sequoia timber as a test block, firing the shots at about fifteen feet. I don't remember the number of shots but the results given are the averages. I didn't have smokeless powder shells in the U. M. C. or the U. S. C. Co.

I have never used the hollow point bullets but I think the results would be about the same as notching the bullet. A bullet notched in this manner will almost cover a dime if used on a rabbit at 200 yards or under and you may be sure your game will be right there when you go to pick it up.

My old Model '90 is about worn out, having handled about 45,000 shells, and when I get another .22 you will hear from me again if the editor says O. K.

California. G. O. GALBRAITH.

Arms and Ammunition Queries

Jack Wick, Portland, Ore.—Wish you would advise if you know of any remedy for cleaning rust out from between the rifling of a rifle. I have a .303 Savage carbine that is badly rusted but have been unable to clean it out; have tried all the remedies I know of, but without success. Have used this gun on deer and bear in this vicinity and find it very satisfactory.

Answer.—If the rusting has proceeded so far as to cause pitting of the barrel there is no remedy, since the metal has been removed where the pits are and it is impossible to put this metal back in place. If the rusting has not proceeded far enough to cause the pitting it can be removed by first pouring boiling water through the barrel for some little time, thus getting it very hot,

to kill the further action of the rust; then clean it with a scratch brush of brass wire, and polish with emery powder. The polishing process requires considerable care and experience and had better be turned over to a good gunsmith, or, better still, send the rifle to the factory to be repolished. It is quite possible, however, that your barrel is metal fouled inside, due to the metal of the jackets of the bullets adhering to the bore of the rifle as sometimes happens in rifles of this type, particularly when used with a slight coating of red rust inside. This form of metal fouling differs from that encountered in the Springfield, Ross and other rifles using bullets with cupro-nickel jackets. In the latter cases the fouling shows, on inspection, as lumps on the lands near the muzzle. In rifles of the .303 class it is comparatively uniformly distributed through the bore and is not noticed in an ordinary inspection. The rifle will appear clean and bright after cleaning, but next morning will look rusted, particularly in the grooves. I would recommend that you give the barrel a treatment for metal fouling, using the formula given elsewhere in this department, thus making sure whether or not this be the cause of your trouble. The barrel should be carefully cleaned of all grease before the solution is put in, and if metal fouling is present the solution will be a greenish blue when poured out. After this treatment a careful inspection will show whether or not the barrel is pitted, and if not you may have no more trouble. If it still continues to rust, give it the hot water treatment and clean and polish as stated. Many a barrel which looks like a hopeless case may be saved by removing the metal fouling and polishing, as the fine grade of steel in these high power barrels will undergo considerable exposure to red rust before pitting.—Editor.

Floyd Halpin, Dunkard, Pa.—I beg to request some information concerning the Standard gas-operated rifle, made by the Standard Arms Mfg. Co., Wilmington, Del. Is the form of magazine used, and the method of handling the cartridges, jam-proof, or is it likely to clog and hang up during fast work? Also, does the gas-port near the muzzle of barrel in any way affect its accuracy? Could one expect as much reliability from this rifle as from a hand-functioned arm, say Remington-U. M. C. pump action? I like the appearance of the Standard rifle very well and would prefer it to any other automatic, providing that it is reliable and accurate, but desire absolute dependability above all else. I am far from a gun store and therefore cannot examine the rifle at first hand, so will be exceedingly grateful for any information you may be able to give me concerning this arm.

Answer.—To the best of our knowledge, the Standard autoloading rifle has never given trouble from jams in use. The only complaint we ever heard regarding the action of this rifle was in case of one which had a tendency for the magazine to jar open in use, spilling the cartridges. This fault was in all probability due to a defect in that individual rifle. We do not think that the gas port as used in this rifle would affect accuracy adversely when used as a sporting rifle. It has been objected to in a military arm owing to its tendency toward erosion and increasing in size when used in rapid fire military tests. A tendency of the piston toward fouling has been urged against the military rifle, also the Colt machine gun, but whether or not this would prove objectionable in a sporting weapon we cannot say —having never heard of such an occurrence. In case this rifle should fail to function properly in an emergency, due to defects in the automatic functioning, it can still be used as a trombone action.—Editor.

Calvin Hazelbaker, Grangeville, Ida.—I want to ask you a few questions: What company manufactures the .256 Newton cartridge with 123-grain bullet and a velocity of 3,103 ft. sec., and also what gun can a person buy that will handle this cartridge? Describe to me what a spitzer bullet is? Where is Reed & Co.'s place of business that manufacture the .25 caliber spitzer soft-nose hunting cartridges with a velocity of 3,000 ft. sec.? Who is Fred Adolph and what kind of guns does he manufacture? I have been thinking of buying a Ross rifle, but if they can make the ammunition here in this country as good as the .280 Ross, why do they not make guns to handle it? I have used a Winchester Lee straight pull 6mm. caliber for a number of years, and, outside of its hard trigger pull, it is a wonderful deer gun; but I want a gun that will handle that 3,000 ft. sec. cartridge.

Answer.—The .256 Newton high power cartridge is sold by the Newton Arms Company of Buffalo, N. Y., whose advertisement appears in another column. It is manufactured for this firm by one of our large cartridge companies under contract. The only rifles which will handle this cartridge are Mauser rifles imported by this firm especially for it, Springfield rifles with special barrels adapted to it, and a new American-made bolt action rifle especially adapted to it which they are now having made in this country. A spitzer bullet is one having a comparatively sharp point. The word "spitzer" is a German term meaning "sharp." Reed & Co.'s goods are sold by the Newton Arms Co., who are sole distributors. Fred. Adolph is a German gunsmith, located at Genoa, N. Y., who makes a specialty of fine hand-made firearms, including three-barrel

guns, double shotguns and rifles and Mauser rifles. The question why the American factories do not make rifles to handle cartridges of the 3,000-foot-second class has puzzled sportsmen for some time. Evidently the Newton Arms Company above mentioned found no good reason, as they are preparing to manufacture them in calibers from .22 to .35, including the .280.—Editor.

Clair McAlister, Filer, Ida.—Would the 95-grain bullet with 8 grains Marksman used in the 6mm. rifle do for 300-yard coyote shooting? Is the regulation load heavy enough for bear? What makes this rifle so unpopular? The above questions regard the 6mm. government rifle. Can you give me the formula and directions for making black gunpowder, suitable for laboratory experiment?

Answer.—The 95-grain bullet, with 8 grains Marksman powder, fired in the 6mm. rifle would be about as effective as the .25-20. The trajectory would be so high as to render hitting at 300 yards a very grave problem, and only an exceptionally well-placed shot would be immediately fatal. The regulation load is heavy enough for black bear and similar game but the writer would prefer something stronger for grizzly or Alaskan brown bear. The principal cause of the lack of popularity of this rifle was in the cartridge used. This cartridge gave what was, at the time of its introduction, a superb velocity, but the bullet was so light that with its blunt point it lost velocity very rapidly, being very inefficient beyond 600 yards. The velocity called imperatively for a first class powder and the powders then in use were far inferior to what they are now. Francis Bannerman, who purchased the cartridges on hand in the navy when the Krag was adopted, was forced to "scrap" them, as the deterioration of the powder made them unsafe for use. The cartridge was developed about fifteen years too soon. With our present powders and with a spitzer-point bullet it makes a splendid cartridge. The writer has obtained 2,700 ft. sec. velocity from this cartridge at a chamber pressure of 47,500 pounds per square inch. The original cartridge gave but 2,500 ft. sec. with a chamber pressure of 60,000 pounds. Another serious objection to the rifle is found in the system upon which it is rifled. When the writer attempted to speed up the bullet by using a large shell he found the bullet jackets would split and good results could not be obtained. This was not the fault of the cartridge or of the bullet, but solely that of the system of grooving the barrel. In a new rifle this trouble could be avoided by using a proper system of rifling and it would be easy to obtain 3,000 ft. sec. velocity with the 112-grain bullet, which would be decidedly superior in efficiency to the Springfield. The formula and directions for making black powder require so much space that it is impossible to give them in this department with anything like the thoroughness necessary to avoid undue danger upon the part of the experimenter. "Modern Explosives," by Major Erasmus M. Weaver, U. S. A., published by John Wiley & Sons of New York City, has not only a full and complete chapter on the manufacture of black powder, but treats fully and comprehensively of the ingredients, the manufacture, the theory and the use of both black and smokeless powders and also of the higher explosives used in the military service. To one interested in explosives this book is an unfailing source of interest.—Editor.

M. W. Skipworth, Eugene, Ore.—Will your arms and ammunition editor please give me comparative effectiveness, on small deer, black bear and cougars, of the .33 Winchester soft-point, the '06 Government 220-grain soft-point and the .30 Winchester soft point, either based on his personal experience or the opinions of others? I have been unable to gain satisfactory information on this subject and realize that ballistics do not always denote the killing efficiency of bullets.

Answer.—This inquiry calls for comparative effectiveness, not sufficiency, of the different cartridges named, therefore we need not open any "Big Bore vs. Little Bore" discussion. The comparative effectiveness of the bullets depends upon their striking power together with the manner in which that striking power is utilized, in other words, upon how well the bullet mushrooms. The game does not stand at the muzzle of the rifle, but at varying distances away, quite frequently up to 300 yards, therefore we give the velocity and striking power of the three cartridges at the muzzle and at 200 and 300 yards as follows:

	Velocity Ft.. Sec.	Energy Ft. Lbs.
At Muzzle—		
.33 W. C. F.	2056	1877
.30 U. S. G.	2200	2376
.30-30-170	2008	1522
At 200 Yards—		
.33 W. C. F.	1467	960
.30 U. S. G.	1812	1602
.30-30-170	1493	850
At 300 Yards—		
.33 W. C. F.	1246	680
.30 U. S. G.	1639	1311
.30-30-170	1290	629

From the above it will be seen that the .30 U. S. G. cartridge is, from the standpoint of power, decidedly superior to either of the two others, and that its superiority increases with the range since its longer bullet enables it to retain its velocity better during flight, while the .30-30-170 is a close second to the .33 W. C. F. From the standpoint of mushrooming and killing power, the type of bullet being equal, that having the highest velocity will mushroom

best and kill most quickly. Here again the .30 U. S. G. has the advantage, not only at the muzzle but increasingly so the longer the range becomes, hence is a better killer in proportion to its velocity. The type of bullets used is much the same, that is, about the same amount of lead is exposed, and in much the same form, therefore the .30 U. S. G. is the best and most efficient bullet of the three. The difference at 200 and 300 yards between the .33 W. C. F. and the .30-30-170 is but small, and enables one to give consideration to the question of weight of rifle and ammunition in making a choice. The bullet of the .33 W. C. F. is flat at the point, but this cannot make up for difference in mushrooming properties due to the higher velocity of the .30 U. S. G.—Editor.

Arthur W. Summers, Eldorado, Ill.—Under the new regulations permitting sales of obsolete government arms to individuals, I recently purchased a Krag-Jorgenson carbine, model 1899, "cleaned and repaired and in serviceable condition." It reached me in due time, in fine shape as to the working parts, but I am afraid the barrel is worn out; which brings me to the object of this letter. A bullet for this gun can be inserted 13/16-inch into the muzzle without force. In firing twenty rounds, seven shells burst at the neck. Given those conditions, what do you say as to whether the gun is greatly impaired as to accuracy? The cartridges purchased from the government came in boxes stamped with a rubber stamp, "Rifle velocity at 53 feet, 1,959 feet—May 4, 1899." If I am correct in the assumption that these cartridges were loaded in 1899, what effect, if any, will the extreme old age have on their reliability? Will the metal-patched bullets as furnished spoil a goose for eating purposes? There is quite an interest here now in the Army gun. Since I got mine, there have been four ordered, and many more will be bought in the near future. We expect to organize a rifle club here this year under the rules of the N. R. A. Very few of our gun enthusiasts (myself included) ever shot anything but scatter-guns and .22s, and I attribute the interest shown to the war in Europe, combined with the extremely liberal prices at which the guns and ammunition are being put out.

Answer.—The distance to which a bullet could be inserted into the muzzle of the rifle is no proof that it has been unduly worn. The different makes of bullets vary somewhat in their taper and some reach the bore diameter at a point nearer the point of the bullet than others. Further I do not think your rifle has been enlarged at the muzzle at least for the reason that there is ordinarily very little wear at this point even when the barrel is completely worn out at the breech. By removing the bolt from your rifle and looking through if the lands near the chamber appear square the gun is not badly worn, but if they are round on the corners this indicates wear, as the principal part of the wear is immediately in front of the chamber.

Touching the ammunition the bursting of the shells at the neck does not indicate any defect in the rifle itself; it merely indicates a defect in the shell. Much of the ammunition made at the date this seems to have been made, viz., 1899, had seams in the shells, due to imperfect drawing. These seams at times caused the necks of the shells of the loaded cartridges to split even without firing, they splitting in storage. This has all been overcome by the improved methods for drawing later adopted. As to the age of the powder I think you will find no material deterioration, as my experience with W. A. powder, which was used in these, is that it is very stable. I do not think your full metal patch bullets will injure a goose for eating purposes. My experience in this line is limited to one loon shot at about 300 yards, and in this case there was no undue tearing from the bullet; it merely made a clean perforation.—Editor.

J. J. McGlynn, San José, Calif.—You will greatly oblige me by answering the following: Can I, with safety, and without injury to my rifle—a .40-65-260 Winchester, model 1886, No. (148912 A)—use the high-power Remington-U. M. C. Co.'s cartridges? The rifle has, to the best of my belief, an "extra heavy" barrel, weighing 10 pounds exactly, which is awfully heavy even for an '86 model. I want very much to use these shells, which give 1,790 by 1,800, which shells are greatly desirable, compared to blacks.

Answer.—Your model 1886 Winchester is amply strong to withstand the pressures developed by the cartridges which you mention. These cartridges are made expressly for use in black powder arms, there being no special high-power arms made for them. The model 1886 Winchester is one of the strongest of the lever action type and has ample strength. The writer has used the model 1886 in a .40-82 caliber, with special nickel-steel barrel, ordinary action, with a special load of smokeless powder developing 2,150 ft. sec. velocity, without trouble, and this required far greater pressures than found in the cartridges you mention. The barrel on your rifle, as well, is amply strong, but would advise you that, owing to the softer steel not resisting heat as well as the special steels used in the high-power rifles, in connection with the considerable degree of heat developed by the Sharpshooter powder with which your shells are loaded, the life of the barrel will be comparatively short, unless used carefully. When used for game shooting, where the shooting is not rapid and the barrel usually has time to cool

considerably between shots, you will have no trouble; but if used for target work, where the shooting is more rapid and the barrel brought to a higher degree of heat with each succeeding shot, a few hundred rounds are likely to cause erosion of the barrel at the breech. Therefore, in using these cartridges endeavor to avoid unnecessarily heating the barrel, and you will obtain a great deal of service from it without injury.—Editor.

Curt B. Mueller, Cleveland, Ohio.—Am curious as to whether the enclosed might be likely to sufficiently interest your readers. Sorry my universal focus camera couldn't effect better results. Is this not unusual penetration for this cartridge?

A .38 S. & W. Special bullet two-thirds out of bark on opposite side of 8-inch pine (near center).

None other emerged even to one side of the center. What should be the cause of the bullet stopping—hanging on a thread, as it were?

Answer.—The photo you submit is an interesting instance of just enough energy and not too much. The reason for the decidedly greater penetration of this bullet than of the others fired on the same occasion may be the bullet in question chancing to strike exactly in the hole made by another bullet and thus the resistance of the solid wood not be encountered until the bottom of the first hole be reached.—Editor.

W. D. Tompkins, Parshall, Colo.—I have a model '94 Winchester .25-35 carbine, which I have great trouble in cleaning. After shooting it a few times, I have to spend from half to three-quarters of an hour with the cleaning rod. I have used as high as twenty patches of white cloth and still the last one would not come through clean. I have had the gun less than a year. When I first got it I used only a cloth with a little vaseline. When I found this didn't do, I got some Marble's nitro-solvent oil, which I am still using. I can't see that it is any better; in fact, I have never gotten the barrel entirely clean though working on it repeatedly until tired out. And yet, after a few passes with a cloth the bore looks to be perfectly clean and bright as a new dollar. I have a friend who has the same gun. He says he has no trouble cleaning his, and does it in a few minutes. And he takes good care of his guns. Is it usual for these guns to be so hard to clean? Or am I using the right methods? My friend uses nothing but vaseline and a cloth on his. My gun is very accurate and I want to keep it so. Any information you may give on the subject will be highly appreciated.

Answer.—Your rifle is undoubtedly metal-fouled inside. This is not of the form which builds up on the lands and leads to inaccuracy, and which is easily visible to the eye, but a thin coating of copper over the entire bore. It is doubtless due to the rifle having been insufficiently cleaned at some time in the past and become slightly rough inside, without actual pitting. I have seen many such. This can be removed by using a metal fouling solution such as "Winchester Crystal Cleaner" in mild cases. If this does not remove all traces of the trouble, use the following formula:

1 fluid ounce stronger ammonia.
50 grains ammonium persulphate.
25 grains ammonium carbinate.
5 grains ammonium dichromate.

This solution is far more active than any of the commercial solvents and with it I have removed in an hour metal fouling which had resisted totally the effects of the commercial solvents for 24 hours, they not even being colored when poured off. The solution is clear as water when mixed but is of a greenish blue when the nickel or copper is in solution, the exact shade being determined by the proportions of nickel and copper; and the depth of the coloring by the amount of the metal in solution. This solution generates gas very rapidly and, if tightly corked, will sometimes burst the bottle; if not tightly corked it will blow the cork out. I compromise by tying the cork in, but sufficiently loosely that the gas may force it up enough to escape but not blow it entirely off. A rubber cork should be used if possible, as the solution quickly destroys an ordinary cork. The solution is very strong and will injure cloth, paint, varnish, etc., and should not be allowed to come into contact with the clothing, carpets, waxed floors, the stock of the rifle or other substances which it may injure. In use, place a cork in the breech of the barrel and, if convenient, slip a short piece of rubber hose over the muzzle tightly and projecting about two inches beyond. Pour the barrel full of the solution and set it away for an hour, after which it may be poured off and the barrel thoroughly cleaned, dried and oiled. If no rubber hose

(Continued on page 98.)

The Wonderful Mission of the Internal Bath—

By C. G. Percival, M. D.

DO YOU KNOW that over three hundred thousand Americans are at the present time seeking freedom from small, as well as serious, ailments, by the practice of Internal Bathing?

Do you know that hosts of enlightened physicians all over the country, as well as osteopaths, physical culturists, etc., etc., are recommending and recognizing this practice as the most likely way now known to secure and preserve perfect health?

There are the best of logical reasons for this practice and these opinions and these reasons will be very interesting to everyone.

In the first place, every physician realizes and agrees that 95% of human illness is caused directly or indirectly by accumulated waste in the colon; this is bound to accumulate, because we of today neither eat the kind of food nor take the amount of exercise which Nature demands in order that she may thoroughly eliminate the waste unaided—

That's the reason when you are ill the physician always gives you something to remove this accumulation of waste, before commencing to treat your specific trouble.

It's ten to one that no specific trouble would have developed if there were no accumulation of waste in the colon—

And that's the reason that the famous Professor Metchnikoff, one of the world's greatest scientists, has boldly and specifically stated that if our colons were taken away in infancy, the length of our lives would be increased to probably 150 years.

You see, this waste is extremely poisonous, and as the blood flows through the walls of the colon it absorbs the poisons and carries them through the circulation—that's what causes auto-intoxication, with all its perniciously enervating and weakening results. These pull down our powers of resistance and render us subject to almost any serious complaint which may be prevalent at the time—and the worst feature of it is that there are few of us who know when we are auto-intoxicated.

But you never can be auto-intoxicated if you periodically use the proper

kind of an Internal Bath—that is sure.

It is Nature's own relief and corrector—just warm water, which used in the right way, cleanses the colon thoroughly its entire length and makes and keeps it sweet, clean and pure as Nature demands it shall be for the entire system to work properly.

You undoubtedly know from your own personal experience, how dull and unfit to work or think properly, biliousness and many other apparently simple troubles make you feel. And you probably know, too, that these irregularities, all directly traceable to accumulated waste, make you really sick if permitted to continue.

You also probably know that the old-fashioned method of drugging for these complaints is at best only partially effective; the doses must be increased if continued, and finally they cease to be effective at all.

It is true that more drugs are probably used for this than all other human ills combined, which simply goes to prove how universal the trouble caused by accumulated waste really is—but there is not a doubt that drugs are being dropped as Internal Bathing is becoming better known—

For it is not possible to conceive, until you have had the experience yourself, what a wonderful bracer an Internal Bath really is; taken at night, you awake in the morning with a feeling of lightness and buoyancy that cannot be described—you are absolutely clean, everything is working in perfect accord, your appetite is better, your brain is clearer, and you feel full of vim and confidence for the day's duties.

There is nothing new about Internal Baths except the way of administering them. Some years ago Dr. Chas. A. Tyrrell, of New York, was so miraculously benefited by faithfully using the method then in vogue that he made Internal Baths his special study and improved materially in administering the Bath and in getting the result desired.

This perfected Bath he called the "J. B. L. Cascade," and it is the one which has so quickly popularized and recommended itself that hundreds of thousands are today using it.

Dr. Tyrrell, in his practice and researches, discovered many unique and interesting facts in connection with this subject; these he has collected in a little book, "The What, the Why, the Way of Internal Bathing," which will be sent free on request if you address Chas. A. Tyrrell, M.D., 134 West 65th Street, New York City, and mention having read this in Outdoor Life.

This book tells us facts that we never knew about ourselves before, and there is no doubt that everyone who has an interest in his or her own physical well-being, or that of the family, will be very greatly instructed and enlightened by reading this carefully prepared and scientifically correct little book.

suitable for the purpose be at hand merely fill the barrel to the muzzle with the solution; the hose merely makes it a little easier. In your case the barrel should be well polished inside after the removal of the metal fouling to get rid of the roughness which is the cause of the fouling. It would be best to entrust this to a good gunsmith or send the rifle to the factory to be "leaded."

In making up the solution do not let the druggist give you something "just as good as" the persulphate or dichromate; he will in all probability try to, as few of them have it in stock. It is well to have them obtain an ounce of each from a wholesale house for you if they do not carry it.—Editor.

L. E. Fleury, Alma, Colo.—Is the .22-caliber long rifle cartridge hollow-point, 35-grainbullet as accurate as the regular .22 long rifle which carries a 40-grain bullet, both being loaded with 5 grains of powder? Also would the trajectory of the 35-grain bullet be flatter?

Answer.—Mr. C. S. Landis recently published the results of some comparative tests of hollow-point and solid-point bullets in these cartridges covering a number of different makes and loadings. His figures showed a decided superiority in accuracy for some of the lots of cartridges over others. In the three most accurate types the hollow-point bullets proved superior in accuracy to the solid points, while in the two more inaccurate types the solid-point bullet was the most accurate. There would seem to be no apparent reason why the hollow-point bullets should not be fully as accurate as the solid-point, since they should fly steadier, owing to having the weight of the bullet at the point farther away from its axis, thus enabling the rotation to have more of a steadying effect.

If there is any difference in trajectory it would be so small as to be negligible.—Editor.

O. D. Frazee, Medford, Ore.—In your November number of Outdoor Life I notice an article written by "J. J. S." (Arms and Ammunition Department) in which he speaks of the Savage new 25-caliber. Will you kindly tell me if the Savage people make a rifle of such caliber and also if there are any articles in any back numbers of Outdoor Life giving a description of this rifle.

Answer.—The Savage Arms Co. exhibited at Camp Perry during the national matches in August, 1913, a new .25-caliber Savage rifle. It was then stated that deliveries would begin about January 1, 1914. To the best of the writer's knowledge this has not as yet been placed upon the market. We are not advised as to what complications have led to this delay in marketing it.

As exhibited at that time it consisted of the featnerweight model rifle, the same as made up in the .22 high-power, but with a 22-inch barrel, using a rimless shell made substantially by necking down the Remington Autoloading .35-caliber shell, and an 87-grain bullet, soft sharp-point, driven at a muzzle velocity of 3,000 feet per second. The rifle attracted great attention at that time and many would-be purchasers expected to have the privilege of using one in the then near future. The manufacturers decline to state why it has not been, or when it will be, marketed. The velocity was 200 ft.-sec. greater than that of the .22 high-power, but the carrying ability of the bullet little if any greater. Many riflemen who saw it there were inclined to criticize the use of such a light bullet, claiming it would be a more efficient weapon were its velocity reduced to 2,300 ft.-sec. and the bullet weight increased to about 100 grains, thus enabling it to retain its velocity better. It is possible the ammunition question may be involved in the delay. We trust soon to have the pleasure of announcing its appearance upon the market. It has not as yet been described in detail in any of the magazines.

The following table shows the ballistics of the cartridge as shown at Camp Perry; also, for comparison, those of some others of the .25-caliber and those of the .22 high-power.—Editor.

Bullet	.22 Sav. H.P. 68 gr. C-.26	.250 Savage 87 gr. C-.276	.256 Newton 123 gr. C-.464	.25-35-117 C-.245	.25-35-117 Rem. Auto. C-.245
Range, Muzzle—					
Velocity, ft. sec.	2800	3000	3103	1978	2127
Energy, ft. lbs.	1190	1740	2632	1016	1175
100 Yards—					
Velocity, ft. sec.	2453	2657	2891	1680	1812
Energy, ft. lbs.	911	1375	2288	733	854
Trajectory, ft.	.052	.045	.04	.109	.094
Time Flt., sec.	.114	.106	.100	.165	.153
200 Yards—					
Velocity, ft. sec.	2131	2340	2689	1420	1535
Energy, ft. lbs.	687	1061	1980	516	608
Trajectory, ft.	.242	.204	.173	.576	.443
Time Flt., sec.	.246	.226	.208	.359	.333
300 Yards—					
Velocity, ft. sec.	1833	2042	2496	1218	1303
Energy, ft. lbs.	510	783	1709	386	433
Trajectory, ft.	.666	.530	.417	1.38	1.19
Time Flt., sec.	.408	.364	.323	.588	.546
500 Yards—					
Velocity, ft. sec.	1341	1526	2133	1001	1036
Energy, ft. lbs.	272	435	1242	257	281
Trajectory, ft.	.246	1.98	1.35	5.20	4.58
Time Flt., sec.	.784	.704	.583	1.14	1.07
1000 Yards—					
Velocity, ft. sec.	869	920	1383	721	744
Energy, ft. lbs.	114	165	513	129	134
Trajectory, ft.	20.1	17.6	8.53	34.1	31.14
Time Flt., sec.	2.24	2.10	1.46	2.92	2.79
1500 Yards—					
Velocity, ft. sec.	641	700	1016	508	526
Energy, ft. lbs.	62	95	283	67	70
Trajectory, ft.	71.8	60.8	30.47	117	108.1
Time Flt., sec.	4.26	3.90	2.76	5.40	5.19

"Bristol"

TRADE MARK REG. U.S. PAT. OFF.

Group of Rods

"A rod for every kind of fishing."

A few days ago we were studying a batch of reports from sportsmen in the great Rocky Mountain section, and we were delighted to see that these fishermen own anywhere from 2 to 75 fishing rods each—and feel that they have none too many. How many have you?

Why not send for the new "BRISTOL" catalogue today and build up your fishing kit with the five, six, or seven rods, which you ought to own depending on the kind of fishing you can get. Here are a few favorite rods:

No. 38—The new adjustable telescopic fly rod, 9 ft. Joints lock absolutely at any length by ingenious arrangement of guides. Hangs well and gives extraordinary service. Nickel mounted, two-ring German silver tie guides and German silver one-ring fly tip. $4.50 to $5.50.

No. 24—9 ft., fly rod. Known as a trunk or bag rod. Joints only 17¼ in. long. Handy outfit for traveling. Rod is well balanced and hangs beautifully. Price $8.00 to $9.00 according to handle.

No. 16—9 ft., nickel mounted German silver snake guides, and one-ring fly tip. Splendid all-round rod for trout and bass fly fishing. Sufficient backbone to use as a bait rod. $4.50 to $5.50.

No. 8—10 ft., jointed fly rod, nickel mounted; two-ring German silver tie guides and one-ring German silver fly tip. Excellent trout rod, flexible and strong. A good distance and accurate fly caster. Reel seat below the hand. Price $4.50 to $6.25.

No. 5—The original telescopic fly rod, 9½ ft., long, famous in Rocky Mountains and on the Pacific Coast. Wonderfully adapted for work in overhanging brush, in rocks, and in rough going. $3.50 to $4.00.

Order any one or all of these rods from your dealer. If your dealer hasn't them and cannot get them for you promptly, we will supply you by mail, promptly, at the above prices.

Write for Illustrated Catalogue and Full Particulars.

The new 1915 "BRISTOL" art calendar is beautiful and is a full color reproduction of an oil painting by Philip R. Goodwin, the noted out-door-sports artist. Size 16½x20 inches. A handsome decoration for home, office, den or camp. Sent prepaid, only on receipt of 15c.

THE HORTON MFG. CO.

88 HORTON ST. BRISTOL, CONN.

Pacific Coast Branch, Phil. B. Bekeart Co., 717 Market St., San Francisco, Calif.

BOOKS FOR THE SPORTSMAN

Lands Forlorn (the story of an expedition to Hearne's Coppermine River), by George M. Douglas, with an introduction by James Douglas, LL.D.; 285 pages; illustrated; $4 net; G. P. Putnam's Sons, New York.

The Coppermine River flows through the Barren Lands of Northwest Canada into the Arctic Ocean. This book is a story of eighteen months spent in these inhospitable regions by the author and his companions, handling their own canoes, carrying their own packs and caring for and driving their own dog teams. As a rule, Arctic voyaging is undertaken after elaborate preparation, and with the help and guidance of a number of Indians. This narrative and its long series of excellent illustrations indicate that skillful canoeists who are fond of camping may start with less pretentious preliminaries and successfully complete a trip of Arctic exploration abounding with sport and excitement. The letterpress of the volume is superb, the beautifully coated enamel paper producing the 180 photographic illustrations in the very best style.

Plantation Stories of Old Louisiana, by Andrews Wilkinson; 338 pages; $2 net; illustrated; the Page Co., Boston, Mass.

Primarily, these nature and animal stories are for the children's hour, but their undying philosophy and humor will charm every member of the household from the smallest toddler to the old folks. In Old Jason the author has created a character that will rival the justly-famed Uncle Remus. The old fellow's legends, related in the quaint negro dialect of the South of years ago, are remarkable examples of a vanishing folklore and are certain to entertain even the most blasé reader. Nor has the author been satisfied with having created only that delightful character. He has included in his volume stories of birds and animals which will take rank with Kipling's jungle books; he has given us stories in the hitherto little known Creole dialect, and through them all he has maintained an attractive interest which grasps the reader.

The Romance of the Beaver, by A. Rodcliffe Dugmore; 235 pages; $2.50 net; illustrated; J. B. Lippincott Co., Philadelphia.

This book, with its beautiful illustrations, tells of the cutting down of the giant trees, and how and why they are cut; of the building of the dams, which are sometimes a thousand feet in length, and how they are built; of the well-constructed lodges or houses; of the marvellous canals, the planning of which involves the extreme limit of animal intelligence; of the beaver's remarkable home life, which is a model of all that domestic conditions should be; of the far-reaching effects of all that the beavers do in the way of forming great, fertile meadows for the use of man; conserving the water supply so that freshets and floods are prevented and water ways made for the use of the explorer and canoeist; of the part played by the beaver in the development and history of Canada. All of this and much more goes to make "The Romance of the Beaver" a book which should appeal to all classes of readers, old and young, layman and scientist.

The Spell of Japan, by Isabel Anderson; 396 pages; $2.50 net; illustrated; the Page Co., Boston.

The author's husband was appointed by President Taft in 1912 ambassador to Japan, and the whole time of their sojourn in that country was filled with experiences seldom vouchsafed to foreigners. Mrs. Anderson took copious notes and she has utilized these in the preparation of her delightful and illuminating volume. It is so naturally and so unostentatiously written that one almost forgets to be amazed at the intimacy of the pictures: one enters the Imperial palaces and attends Court functions as simply as one would go to an afternoon tea at home. Mrs. Anderson's book cannot fail to serve as a new and important tie of friendship between the United States and Japan.

Big Game Fields of America, by Daniel J. Singer; 368 pages; $3.25 net; illustrated; Geo. H. Doran Co., New York.

A considerable audience has been following every word that Dan Singer has written about his hunting expeditions as they have appeared in magazines. Now at last has appeared his first book, "Big Game Fields of America: North and South," It relates the most dramatic and interesting moments of all his hunting trips. The chief sections concern hunting in the bush in British Guiana, two trips to Mexico, studying the black bear in the Rockies and game trails in Alaska. With the account of the actual trips, there appear careful studies of the jaguar,

"Never-Leak" Russell's Famous Boot for Sportsmen

Designed for general outdoor wear. Sturdy and staunch, for heavy service on the trail, yet light and yielding to the feet. The tough, double sole insures extreme durability, no matter how rough the ground. Soles hob-nailed or smooth. Toe pieces and vamp joined by our special never-rip "watershed" seam (patent applied for) which holds tight and keeps the water out. Made of (black) chrome, flexible cowhide. Built for business and guaranteed to fill the bill, or your money back. $6.00 to $15.00 per pair. Worn by experienced campers, fishermen, hunters, canoeists, "hikers," trappers, skiers, surveyors, etc.

In any height.

Made to your measure.

Send for book showing our complete line. Free on request.

W. C. RUSSELL MOCCASIN CO.
Factory L. BERLIN, WISCONSIN

"This Keeps My Gun NEW"

"I've tried every gun dressing, but this new **COROL** is a wonder. It prevents *rust, fouling* and *pitting* like a charm. I'm telling all my friends about it."

COROL is so much more effective and lasts so much longer than anything you have used before that you ought to send for a sample and try it. It will practically keep your gun *new.*

Write for FREE SAMPLE
and booklet "Gun Hints"
COROL SALES CO., 1433 Fisher Building, CHICAGO

Comparison Counts

Our Special Offer:
Tells you how to compare our $25.00, $30.00, $35.00 and $40.00

Alpine Binoculars
with any other one.

PAUL WEISS, OPTICIAN
1620 Arapahoe St., Denver, Colo.

INDIAN MOCCASINS

Both Lace and Slipper
Made of Genuine Moose Hide
Men's Sizes, 6 to 11, at $2.75
Ladies' or Boys' Sizes, 2 to 6, at $2.25

Sent prepaid on receipt of price. Money refunded if not satisfactory.

We make the finest Buckskin Hunting Shirts in America. Carry in stock the largest assortment of Snow Shoes in the country. Also hand made Genuine Buckskin and Horsehide Gloves and Mittens. Our Wisconsin Cruising Shoes have no superior as a hunting shoe. Send for Free Catalog today.

Metz & Schloerb, 84 Main Street, OSHKOSH, WIS.

The Sportsman Needs

a cap that affords real protection and service under the hardest conditions.

"Jones Waterproof Hunting Cap"

Supplies this need as no other cap or hat can. Made of Red, Tan or Olive Green Khaki, also Grass Colored Corduroy; has rubberized lining, which makes it absolutely waterproof. Cap has Fur inside band to be pulled down over ears in cold weather. Outside rim also can be turned down, preventing water or snow running down back of neck. This is the best and most practical hunting cap ever made.

Price $1.25

See them at your dealer's. If he will not supply you we will send prepaid, on receipt of Express or P. O. Money Order. Do not send local or personal check. Mention size wanted and your dealer's name.

Write for Booklet of Other Styles including Automobile and Fur Caps.

JONES HAT COMPANY, ST. JOSEPH, MISSOURI
DEPT. A.

the black bear and other big game, from long days of the most careful observation, in their natural haunts. The book is most elaborately illustrated with three drawings, one in full color, by Charles Livingston Bull, most famous of all animal artists, and seventy remarkable photographs taken by the author.

African Adventure Stories, by J. Alden Loring; 300 pages; $1.50 net; illustrated; Chas. Scribner's Sons, New York.

Mr. Loring, who was field naturalist to the Roosevelt African Expedition, publishes his experiences under the title of "African Adventure Stories," and to say that they are well worth reading is to do them simple justice. There is a foreword by Colonel Roosevelt in which the former President says that what Mr. Loring describes as facts may be unhesitatingly accepted as such. The author says very truly that it is impossible to remain long in Africa without having at least one thrilling adventure. He tells of the way of the African elephant, of being chased by an ostrich and of being mauled by an elephant and finally describes a fatal encounter with lions. There is no attempt to draw the long bow and Mr. Loring writes so modestly and so well that his readers are almost certain to find entertainment in this volume. There are some good illustrations and the typographical appearance of the book is excellent.

The Wolf Hunters, by Geo. Bird Grinnell; 300 pages; $1.25 net; illustrated; Chas. Scribner's Sons, New York.

With every chapter enlivened by thrilling situations, interesting anecdotes and instructive suggestions, George Bird Grinnell's recent work, "The Wolf Hunters," while essentially a boys' book, can be heartily enjoyed by anybody. Robert Morris Peck, from whose manuscript the book is prepared, with two companions, all recently discharged from the army, decide to combine their fortunes and spend the winter "wolfing," a distinctive industry and attractive feature of frontier life in the early '60s. Game was abundant, particularly the buffalo, which were killed in great numbers, treated with strychnine and used as bait in killing wolves. The dangers of travel during this period, both from natural causes and the frequent attacks of hostile Indians, jealous of the growing supremacy of the white man over their once undisputed hunting grounds, keep an unflagging interest with enough historical fact to give the added charm of the true story.

(Above books for sale by Outdoor Life—postage extra.)

Passing Pleasantries

I wish to say that I enjoy Outdoor Life more than any magazine or paper that I take. The illustrations alone are worth the price of the paper.—Bert F. Malcolm, Highland, N. Y.

Next to sport with deer and turkeys, my greatest enjoyment is in reading the best magazine in the world, Outdoor Life.—A. J. Lowdermilk, Pt. Washington, Fla.

Your magazine is the best of its kind and I shall always try to be a booster.—W. G. Way, Charlestown, N. H.

We haven't read Outdoor Life yet. The writer is going to read it after it is all over, probably right after the holidays. When he reads it there will be three or four hound dogs lying around him and he will have his feet stuck up over a fireplace up in the North Woods country where the snowshoe rabbits and the red foxes will absorb his entire attention.—L. P. Smith, Ithaca, N. Y.

I like your magazine because you are apparently very careful as to the truth of what you publish and look at our game protective propositions in a sensible and broad minded way. Keep on boosting for the protection of our bears.—H. G. Nowels, Longmont, Colo.

I have read and re-read the old copies of Outdoor Life I brought home from the West until I know them, advertisements and all, almost by heart. I have tried a number of the different outdoor magazines but after once getting the spirit of the West in my system I find that none of them hit the spot like Outdoor Life. Each issue of it is like a trip back into the Cascades for me. Here's wishing success to America's greatest sporting magazine.—B. E. Steel, Tazewell, Va.

BOUND VOLUMES FOR 1914

are now ready for delivery. These twelve issues of Outdoor Life for the year 1914 are nicely bound in black cloth and half-morocco leather. Price, $3.50, express prepaid. Order early, as we have only a limited number.

Statement

Statement of the ownership, management, etc., of Outdoor Life, published monthly at Denver, Colorado, required by the Act of August 24, 1912: Editor, J. A. McGuire, Denver, Colorado; managing editor, J. A. McGuire, Denver, Colorado; business manager, M. E. McCumber, Denver, Colorado; publisher, J. A. McGuire, Denver, Colorado.

"Owners—(if a corporation, give its name and the names and addresses of stockholders holding 1 per cent or more of total amount of stock) The Outdoor Life Publishing Co. J. A. McGuire, only stockholder owning 1 per cent or more of total amount of stock.

Known bondholders, mortgagees and other security holders, holding 1 per cent or more of total amount of bonds, mortgages or other securities: None.

(Signed) J. A. McGUIRE,
Editor and Publisher.

Sworn to and subscribed before me this 19th day of September, 1914.

(Seal) WM. J. McPHERSON,
Notary Public.

(My commission expires March 31, 1915.)